CORPORATE LONG-RANGE PLANNING IN SOUTH AFRICA
ITS EXTENT AND NATURE

by

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". . . . giudico potere esser vero che la fortuna sin arbitra della meta delle azioni nostre, ma che ancora elle ne lasci governare l'atra meta, o poco meno, a noi"

". . . . I think it may be true that destiny is the arbiter of one half of our actions, but that it leaves us the other half, or a little less, to govern"

Niccolo Machiavelli :
Il Principe, cap. XXV

PREFACE

This thesis was written in response to the increasingly evident need for the most complete information possible on planning activity and practices among South African firms. It was also dictated by an urgent necessity to clarify the methodologies, techniques and frameworks used at present in business planning.

Alas, only too often scholars and practitioners alike assume that a comprehensive and general theory on planning exists, complete with methodologies, models, frameworks and so forth. But anyone examining the vast amount of literature on planning and related subjects published during the past twenty years would find this to be a fallacy, and may experience the same desire for the clarification of the present status of the planning art as we did. This desire became one of the principal stimuli for our investigation.

Some studies may be built on already well-established foundations, but this is unfortunately not the case in our enquiry as there is as yet no appreciable base consisting of a distinct body of knowledge and relevant theories. In attempting to delineate this knowledge, a necessary point of departure is an appraisal of the current state of human knowledge. We shall, therefore, start with a broad review of this knowledge and narrow it down to areas which are particularly relevant to business planning.

This attempt will, hopefully, point to a body of distinct knowledge indispensable to modern planners and show that,

whilst a large body of this knowledge lies within a discipline called 'management science', other relevant knowledge is found in economics, organisation theory and theory of knowledge. This analysis will, at the same time, highlight the present status of the relevant theory of planning, and indicate gaps between the state of the art and the needs of the business. We shall suggest that a general planning theory must come from an interdisciplinary approach.

The aim of these efforts is to develop a broad framework and guide for our analysis of planning activity, concepts and methodologies at present used by South African firms. On the basis of these findings we shall than make judgements on the manner in which South African planners address each of the descriptive and normative planning topics, and suggest possible directions for further research. Finally, we shall attempt to formulate a conceptual long-range planning model as we see it, and discuss the usefulness of formal, mathematical planning models as revealed by our study and survey.

In concluding the preface, I should like to convey my thanks to various persons who assisted me in writing this thesis. Of these I would mention in particular Professor J.D. Hampton for the help he has given me during interviews. I am also greatly indebted to Professor A.P. Abrahams for the initial inspiration and Professor M. Feldberg for his help and encouragement. Last but not least my thanks go to Mrs J. Wood who had the courage and patience to type this thesis.

PART I : APPROACH AND TOOLS

1. INTRODUCTION

A leading practitioner of planning has observed :

> "There is nothing new about long-range planning, corporate strategy, or corporate development. Only the emphasis is new. By one means or another, all companies in the past have adjusted themselves to changes in competition, markets and technology. All companies to some degree have always had plans for improving their situation."(1)

What is the new emphasis? True, companies have for many years had short- or long-range plans for their operations, and yet, in one sense, corporate planning is a new management tool. Its origin can be traced to the period following World War II when many firms began to realise the necessity of a different approach to planning. During this time the emphasis has shifted from haphazard to formal planning.

What were the reasons behind this change? During the 1950's it was realised that predictions and planning executed on a formal basis were becoming critically important in the light of changes occurring in the firms' environments.

These changes brought about by dynamic forces such as

the growing population, increasingly complex social, economic, technical, political and cultural factors, were so compelling that organisations of any kind were faced with the inevitability of using more conscious, integrated long-range planning if they wished to survive under new conditions. Without a more systematic, formal and analytical approach towards planning, the increasing learning, supply and allocation problems could not be solved.

The problems faced by humanity in general, and by business firms in particular, have been admirably described by Alvin Toffler in his book, "Future Shock". He said :

> "We are entering a new society. Not a changed society. Not an extended larger life version of our present society, but a new society."(2)

He goes on to explain that unless we understand this we shall destroy ourselves in trying to cope with tomorrow. He calls the changes occurring in our society a "revolution of the high-technology nations". We should realise that such a situation obviously needs our recognition that we are racing towards a wholly new stage of eco-technological development, in which technocratic planning - not only the centralised national planning which until recently characterised the U.S.S.R. but also the less formal more dispersed attempts at systematic changes - is collapsing.

Companies have always had planned projects and have

cannot channel the forces behind the changes in our environment. Where change is swift the old methods only intensify the instability and lead ultimately to the unleashing of dangerous political, cultural and psychological currents, such as permissiveness, delinquency, criminality, terrorism and so forth.

This situation, described so vividly by Toffler, rose above the threshold of crisis during the 1950's though the tempo had been quickening for decades. It is becoming more rapid and the pressures exerted by it more severe. Society's primary problem is to find a way to manage its affairs in this new situation.

Some scholars in management like Ewing, Kami, Green and practitioners like Steiner and Drucker realised the absolute necessity of finding the solution through a more formal, analytical and systematic approach to planning and devoted their efforts in the early and middle fifties towards the acceptance of systematically integrated planning by business enterprises as the sole means for survival.

Many firms have responded to this call, but there are still large numbers of others who cannot grasp the inevitability of acceptance of this new "religion". The gospel of unity can be best described by using Robert L. Katz's statement from his book, "Management of The Total Enterprise":

"Only through explicit attention and conscious planning can a company increase its control over its own destiny. Such planning allows the enterprise to determine and alter events, to actively initiate upon its environment, rather than allow itself to be shaped by external factors over which it exercises no control."(3)

2. SCIENCE AND KNOWLEDGE

2.1 Definition of Science

It may be objected that a discussion of science and knowledge is rather far removed from business planning, but it can nevertheless be shown that the relationship between science, planning and effective modern business management is surprisingly close in the twentieth century.

All that a businessman required in the past, in order to make adequate decisions, was experience and intuition. But, as pointed out above, the rapidly changing world makes this type of decision-making obsolete.

Modern business is a complex and composite interaction of many variables, and businessmen must base their decisions on the knowledge of how the variables interact and why they do so. Changes in conditions calling for a new pattern in corporate behaviour can only be recognised through such knowledge. Naturally, to be able to predict the outcomes of their decisions with justified confidence, modern managers must possess such knowledge.

As will be illustrated, modern management has its foundation in science and scientific research; an explanation of this fact requires an elaboration on the nature of science and on

the function of research in linking science and business practice.

Planning being the most important aspect of management activities, it is essential to describe what every well-educated planner should know. To achieve this, we have to start with a broad review of human knowledge, and then attempt to narrow it down hopefully to areas of knowledge which are particularly relevant to planning.

Obviously, such an approach should in itself be scientific. We must make it clear that the planning executive of today must be a social and economic philosopher of a different kind - an epistemologist - with regard to his method of operations if he is to achieve his objectives.

Attempts have been made to define science in terms of its structure, its purpose or goals, and its methods as well as its distinction from other methods of adding to knowledge.

However, to apply equally to management, let us define science for our purpose as a style of thinking and acting, and not as a body of knowledge; as a process for making seen, heard and felt, certain kinds of things that are sensed in the external world, or as Singer puts it, "a search for judgements to which universal assent may be obtained - universal, that is, on the part of those who understand the judgements and their bases". It is "a search that never

Figure 1 : One Possible Classification of Science

Pure Disciplines				Interdisciplines			
Conceptual	Social	Physical	Informational	Informational Physical	Informational Social	Social Physical	Social Informational Physical
D Philosophy D Mathematics	D Psychology D Sociology N Religion Politics Psychiatry	D Physics D Chemistry D Biology N Engineering N Medicine	D Info Science Semantics N Info Engineering Software	Closed Loop Control Theory Automation	Organisation Theory	Economic Theory Traditional Management Science	Inter-disciplinary Theory New Management Science

D = Descriptive

N = Normative

similar properties, let us bear in mind that science too is in a state of dynamic flux and so it takes on new meanings with successive changes.

There must be, however, an agreement on a few of its characteristics.

There are many definitions of science but for our purposes the definition suggested by Singer[4] is most appropriate. Firstly, as he put it, it is a search for judgement. Science, therefore, is a process of inquiry, during which better and more effective procedures for answering questions and solving problems are developed.

Secondly, although we are not primarily interested in this aspect, science is taken to be a body of knowledge. By this is meant an organised body of tested knowledge based upon the accurate observation of relevant phenomena. This kind of knowledge is articulate, well verified and systematic. It is stated as exactly and simply as possible and describes in general terms the relations which have been proved to exist among facts.

A science, then, is a set of internally consistent propositions, principles and laws and theories describing some significant portion of man's knowledge. These theories are never infallible guarantees of truth and, therefore, never indefensibly true.

yet been tested. It is, therefore, only a tentative explanation of a phenomenon or a solution of a problem.

(4) Laws and principles. A well verified hypothesis is considered to be a law and asserts an invariable association among variables, and this association may be of a deterministic or probabilistic nature. Laws may be classified as empirical (experimental), derived from actual observation of phenomena or from a controlled experiment. A theoretical law represents a statement of relationships based upon other laws, premises or assumptions. A principle is a fundamental statement or general truth providing a guide to thought or action.

(5) Theory. In the scientific sense a theory consists in a logically integrated set of propositions about the relations of variables. It is a system of explanation; it may encompass hypotheses as well as laws. Theories, like laws, are susceptible to testing, modification and rejection at all times.

We have considered the structure of science from the viewpoint of its building blocks. Let us analyse and view it now in terms of its component disciplines as shown in Figure 1, which suggests that science is composed of the following disciplines[6]:

(1) The conceptual discipline which is concerned with ideas of and about the world, such as mathematics and philosophy which deal with ideas exclusively and are concerned with relationships of ideas and not with empirical observation.

(2) The social discipline which studies behaviour, attitudes and motivation of human beings and which is built on empirical foundations. Empirical science has two major objectives : to describe practical phenomena in the world of our experience and to establish general principles by means of which they can be explained and predicted. The distinction between these two goals leads to two types of science : (a) positive, descriptive science which is a systematic body of knowledge, including a description and explanation of existing relationships, and (b) prescriptive or normative science which is concerned with what ought to be. Normative science is concerned with answering how to achieve established goals in the most efficient manner. Much of normative science is concerned with the development of criteria for achieving the established goals and this involves value judgements.

The most important discipline to management is psychology, which covers a large field. On one side it is concerned with the study of the more obvious vital functions, such as reproduction and digestion; on the other hand it merges into a consideration of social relations and activities. It takes human activity and conduct as its subject-

matter and is qualified by some as a science of the conscious or near-conscious activities of living individuals. Psychology, once defined as 'a science of soul', has justified its position as one of the major sciences and its various points of view can be classified as - (a) structural psychology (now called existential to distinguish it from Gestalt psychology); (b) functional psychology; (c) behaviouristic psychology; and (d) dynamic psychology.(7)

Psychological research uses various methods of which the comparative method is of interest to us. It is a way of describing observed likenesses and differences whether among specific individuals, groups of individuals of the same class or differing species of individuals. Likenesses become norms and when statistically expressed, averages. Differences become variations from norms.

With economics already discussing business and industry, and with government treated by political science, sociology found much of the field of social science already preempted. However, it claims to discuss the general laws governing all social developments whatsoever, and it has already won in the West a certain recognition as the body of knowledge having to do with the more general conditions of all human

associations. Yet, both the history and the contemporary state of sociology give evidence of confusion.

(3) The physical disciplines, which include a long list of natural sciences of which physics, chemistry and biology are the major historical cornerstones. As the premises of mathematics are postulates of pure thought, the building stones of natural science are perceived facts. To the risk of reasoning the natural scientist adds the hazards of empirical observation. Every natural science is an intensive, experimental study of one of the many aspects of nature. By physical nature is meant the space-time world, the totality of actual material events.

The chief methods of procedure in natural science may be summarised as follows :

(a) Natural science rests upon experimental observation and precise measurement, which relies upon instruments of precision.

(b) The natural scientist claims to describe observed phenomena in generalisations which must be as simple, comprehensive and well organised as possible. In addition, the natural scientist has made extensive use of various geometrical or mechanical models to aid the mind in

picturing and explaining principles.

(c) No intellectual constructions, however, surpass mathematical formulae as a precise and convenient basis for description and prediction. For this reason the natural scientist reduces his results as far as possible to mathematical models.

(4) During the past twenty years there has been an explosive growth in information science. Despite the lack of unanimity on this point, there is a growing body of evidence that information sciences will take their place along with the other main disciplines as a study of a distinctive class of real-world phenomena.

The above four disciplines forming the core of the scientific tradition before the twentieth century can be presented as the pure mainstreams of the search for knowledge, each concerned with a distinctive group of similar phenomena.

Since the beginning of the twentieth century knowledge has been expanded spectacularly because of interdisciplinary search for knowledge. This search is concerned with studies of systems, each of which incorporates more than one of the 'pure' disciplines.

2.4 Scientific Method

Einstein repeatedly emphasised that science must start with facts and end with facts, no matter what theoretical structures it builds in between. First of all, the scientist observes, then he attempts to describe in complete generality what he has seen and what he expects to see in the future. Next he makes predictions on the basis of his theories, which he checks against facts again.(8)

This cycle starts with facts, ends with facts and the facts ending one cycle are the beginning of the next cycle. Theories are formulated tentatively but they are abandoned if the facts do not bear out the predictions.

The first step that carries us from the original observation to the theories is known as "induction", or the formation of theories on the basis of factual knowledge. Next the scientist must get from his general laws a prediction, and this step is accomplished by "deduction", which is a logical analysis of what the general law says about a particular event in the future. Then he returns to the facts and sees if his prediction was right. This third and final step consisting of experiments or observations, is the "verification" of the theory.

The method of science is systematic and cumulative and the results of scientific research

must be freely and widely communicated. 'Systematic' means orderly, not random. Other scientists must be able to follow similar steps in approaching similar problems and all relevant variables must be classified and evaluated as a part of the process. 'Cumulative' implies that results of knowledge are not discarded but rather that the new knowledge is built upon old knowledge to form a body of science.

Finally, for the orderly and efficient advance of knowledge it must be freely communicated. This provides the basis for knowledge to be built upon knowledge. Conflicting results are identified and eliminated through such a broad communication and further investigation is thus directed toward uncovering the true state of nature.

Can scientific method be applied to business problems? Naturally the answer is that it can, and of special interest and value to this sphere of activity is the approach suggested by Russel L. Ackoff.[9] Its application will be illustrated later in our discussion on the building of models. Ackoff suggests that methodology means a special type of problem solving and any problem situation which arises in a scientific research may be represented by using the following formula :

$$V = f(X_i , Y_j)$$

where V = the measure of the value of the decision that is made

X_i = the variables which are subject to control by decision; the decision variables define the alternative courses of action

Y_j = the factors (variables or constants) which affect performance but which are not subject to control by the decision maker within the scope of the problem as defined; these are called parameters

f = the functional relationship between the independent variables and constants, X_i and Y_j, and the dependent variable V.

Solving a problem consists in finding those values of the decision variables, X_i (expressed as a function, $g(Y_j)$) which maximises (or minimises) V. However, he cautiously adds that at present only a few problems can be formulated in this way but there is a steady progress going on in this field and even when we cannot find the optimality - which would be the objective of methodology - we can learn a lot about the relative effectiveness of different research procedures using the above approach.

How does our identification of scientific knowledge contribute to the understanding and improvement of management practice and hence of planning? What can we conclude about the nature of science as applied to management?

3.. SCIENCE AND MANAGEMENT

3.1 The Nature of Science in the Context of Management

With such questions in mind we shall explore the relationships of science to management by postulating the following premises :

(1) Management means accomplishing an end by judicious use of means, and as such is a universal activity of mankind.

(2) Science can be described as an organised activity and as such operates according to some managerial principle.

(3) Hence, applying science to management means applying it to conditions in which science is pursued.

(4) Applying new concepts and tools to management changes the environment in which management operates as well as the language which management uses.

Our analysis will lead us first to the examination of the nature of science in the context of management and then of the nature of management as an object of scientific attention. This examination will be based on the definition of science as a search for judgement, as suggested by Singer[4].

In studying management we are examining the acts of men directed toward the accomplishment of some objectives and goals both implicit and explicit.

If we were to ask how science helps management on this score, we would find very few judgements that agree. But if we could agree that science and some of its special modern tools, like operations research, study activities which are essentially teleological in character and therefore end-oriented, we may find that some progress has been made.

Science offers models contributing to many kinds of problems in decision-making, enabling us to predict management effectiveness in quantitative terms (e.g. levels of inventories, replacement of equipment, its maintenance, allocation of resources, transportation and many other functions). Such models demonstrate that we can predict consequences of specific types of internal behaviour as influenced by types of external behaviour and physical events.

However, in spite of all this success, there seems to be something lacking in this 'scientific' approach. The new, most successful, developments appear to be based only upon constructing models, nothing more. Science must aim at more than that. General principles - similar to other sciences, like those in physics - must be formulated. We are able to construct satisfactory models for specific cases, but, alas, are unable to formulate

general principles on which their construction is based.

This is probably due to science's over-concentrating on problems of very narrow rather than general significance.

The classical problem solving approach as applied at present is not enough. We need to realise that management represents the process of both social and biological law. We need a lucidly expressed representation of what life is, but this cannot be obtained by a mere accumulation of new facts and through perfecting and completing the language of operational management.

We have stated above that knowledge is cumulative and to some extent self-correcting but, although this is important, the knowledge in itself is not enough.

We may know, for example, why a given combination of variables yields a particular value of an effectiveness measure, but this knowledge does not tell the whole story. It cannot tell us that, while using this particular measure, it may set into motion a sequence of events over time that changes the relational nature of the business process to which the original optimisation (e.g. optimal inventory levels) was applied. For the science, however, such a sequence remains only qualitative in nature.

So, thus far, we have been "model oriented" for

We have defined science as a managed activity and management as a universal activity. These definitions point to the intimate relationship between these two activities. And so, to find the answer to our question above, we need to examine the nature of management.

3.2 The Nature of Management as an Object of Scientific Attention

We shall not start our enquiry by asking what management is, but how the effectiveness of the management of an organisation can be measured as this seems to us the key question to which science should address itself. There is only one dimension where such a measurement can take place : the interaction of the enterprise with the rest of society. Though this statement may seem to be either obvious or trivial or both, it expresses exactly the nature of our knowledge about management.

Using a simple abstraction, we can now, from one scientific viewpoint, define management as the assignment of tasks to people who use prescribed communication links, and as the monitoring of the performance of these tasks, including such subsequent changes in assignment of tasks, communications and methods of monitoring as seem expedient. Many organisational studies have been built around these simple components.

In analysing an organisation, we find, however, two difficulties. Firstly, only the simplest of the

assigned tasks can be stated in generalities because in reality the tasks themselves are too diverse. Secondly, the entities to whom these tasks are assigned are themselves so diverse that they exert influence on the assignment itself, as well as influencing other entities in the organisation.

In view of this complexity, we can now understand why scientists have chosen particular tasks and the means to accomplish these tasks as the most fruitful areas of investigation. But, are dynamic theories of the processes described above possible, even in the most simplified cases, and what central variables should be selected to describe the internal and external interactions of such a management system?

We know that it is both desirable and necessary that science tackle the questions of what management is - which as an object of and for scientific study, still needs definition; what it does or should do, and why, but we seem to be lost facing up to the kind of knowledge that science has thus far discovered in this sphere.

It is imperative that we begin by examining our approaches to management issues as they face the entire human race, and the contributions of science to understanding and knowledge of management which, as we shall see, is meagre indeed.

3.3 The Contribution of Conceptual Disciplines to Management and Planning

To delineate the contribution of science to understanding and knowledge of management, we have to examine the relevant disciplines individually. We shall begin our analysis by evaluating the contribution of conceptual disciplines.

Mathematics and philosophy, two mainstream sciences studying pure ideas, are both highly relevant as inputs to management and planning. Mathematics provides internally consistent logical structures and appropriate methods of calculation for transformation within the structures. Its tools and techniques are used by management and we have continuously improved these tools for dealing with stochastic processes - we can use computers for simulation and gaming as well as in linear, non-linear and dynamic programming. We can use these tools and techniques at operational levels of business but, as pointed out above, although it is important to know actually and hypothetically why a given combination of variables gives a particular value, or how to describe branching processes, or provide models of consumer behaviour among others, this knowledge is insufficient.

Since the dawn of recorded thought, philosophers have attempted to identify the ideals of mankind. Three such ideals were identified - truth, goodness

and beauty - and modern philosophers have identified a fourth - plenty or economic abundance.

It is one thing, however, to have these ideals, but it is another thing to define and justify them. We can, nevertheless, analyse all that is involved in the pursuit of an ideal - the objective; we can find the relevance of the ideals of plenty, truth, goodness and beauty. Men pursue objectives (ends or goals) by various means (courses of action) using a variety of conceptual and physical instruments.

It would then appear that if men want to attain any objective they must be capable of attaining the four mentioned ideals expressed as follows : (12)

(1) The scientific ideal of perfect knowledge

(2) The politico-economic ideal of plenty

(3) The ethical-moral ideal of goodness achieved through :
    (a) the absence of contrary and contradictory objectives within each individual - attainment of peace of mind
    (b) the absence of conflicting objectives among people

(4) The aesthetic ideal of beauty.

The structure of many societies shows that the pursuit of these ideals has objective reality. Examining this structure we find that the principal

difference between societies is how they assign relative importance to the allocation of their resources in this pursuit.

Obviously the achievement of an ethical-moral ideal of goodness through elimination of conflicting objectives should be the principal aim of management. Philosophy offers the major source of value providing management with criteria for choice among alternative courses of action.

In an ideal situation mankind would arrive at a complete scale of values through ethical considerations and would acquire an 'omniscient science' according to which mankind would always know what objectives are attainable and what the right means are to achieve these ends. However, science, as actually available to us, falls short in both of these aims. We shall never attain such a level of knowledge because science is changing too. It is incomplete.

3.4 Contribution of Social Disciplines

Among the major contributions of social sciences to management and hence to the planning problem are :

(a) Empirical data on objectives of organisations and of individuals. This is the second source of the value system, the first being experience itself.

(b) Knowledge about structure, stability and cohesiveness of organisations.

take guidance for their every-day activities. The social scientists may give us advice today on what we should do , but we do not pay a great deal of attention to them, because we do not really feel that they know what they are talking about.

However, even when social science will eventually reach the stage where it can make predictions about our actions with scientific regularity, we will have to face the difficult question of how far the experts are to be trusted in our most basic decision. Even this stage will pass and eventually social science will acquire the same respectability as the physical sciences.

Be it as it may, we can say that, for example, the theory of sampling was developed in the context of social analysis. Factor, latent attribute and scalogram analyses developed in psychology are finding increasing uses in the physical sciences, and most of the tools of modern statistical analysis were developed in behavioural sciences and biology.

3.5 Contribution of Physical Disciplines

The contribution of the physical disciplines is through the information offered on the characteristics, capabilities and limitations of the resource conversion processes in the firm.

Management has borrowed and uses ideas from physics, such as controlled experimentation and dynamic consideration of behaviour homeostasis. Chemistry offered management the ideas of hierarchy of systems, of hierarchical control and of perfect organisation of components. The ideas of negative feedback control, of flows and processes of matter, energy and information have been borrowed by management from biology.

3.6 Contribution of the Interdisciplinary Disciplines

The potential contribution to management from studies of information is great. Many of the early ideas and concepts of planning have neglected the problem of the transfer of information. Present experience indicates that the search for information, the processing of large volumes of data and the communication and acceptance of processed information have major influences on the success of business planning.

Changes in organisational structures were brought about in the period after the World War II through tremendous growth, diversification and internationalisation of many corporations. However, the necessity of an intimate linkage of information requirements with the structural changes has not always been realised. This failure may have been caused by the lack of understanding of the nature of information required by managerial decision makers.

A business organisation can be viewed as a series of large information networks. This idea has been expounded by teachers of management for many years, but was only discussed within the general framework of the business process, and no-one has attempted to examine systematically the different aspects of each information network.

The information required by management must be related to its planning and control functions.

Management needs :

(a) environmental information,
(b) competitive information,
(c) internal information,

and it is important in every case for management to formalise and regularise the collection, transmission, processing and presentation of information required.

Though simple sounding, these are enormous tasks, and only recently have methods, tools and techniques and processing equipment been made available and been applied to this management concept in an effort to achieve in practice what had previously been only a vision. Management information systems play a vitally important role in the development of corporate long-term as well as short-term plans and in achieving effective control of business activities at all levels within the enterprise.

Information is an important resource, and it may

(2) As has already been mentioned, because of their special importance, extensive studies have been made of data flows within business organisations, and of the feasibility of installing data processing and communication equipment for coping with these data flows.

(3) Mathematical tools and techniques, taken from various scientific disciplines, have been applied to the study of business events. By this approach new management control devices and management tools for coping with various business functions have been produced (e.g. reorder points and reorder quantities for inventory control, linear programming, production control systems, operations research, etc.). Business processes have been submitted to the scientific method, and applied models (mathematical, descriptive, analytical and simulated) are used frequently to study business situations.

Science, of all disciplines, is increasingly being drawn into top level management decision making. Such developments as operations research and systems analysis and engineering have brought science into the field of important social and economic problem solving.

One particular interdisciplinary system which has made a major contribution to management studies and planning is the field of economics

Figure 2 (cont.)

	Discipline	Low Level System	An Intermediate Level System	High Level System	Super System	Ideas That Can Be Borrowed or Used By Management
Social Science	Psychology	Personality attribute	Perception	Human being	Dyad (a group of 2) or Triad (a group of 3)	Understanding behaviour Understanding oneself - group dynamics - cultural factors - social factors
	Sociology	Primary group	Community	Society	World Universe	Dealing with people Advertising considerations New product development
	Anthropology (cultural)	Family	Tribe	Civilisation	Culture	Physical (human limitations considerations)
	Economics	Transaction	Demand and supply	National economy	Economic unions (e.g. Common Market)	Forecasting economic conditions Pricing Price elasticities Understanding the competition
	Management	Individual or single operation	Group or department	Organisation	Industry or federation	

Source : European Business; Summer 1971; p.66.

4. THE UNITY OF SCIENCE AND MANAGEMENT

4.1 Definition of Management Science

Whatever the contributions of scientific disciplines to management are, or whatever management is, one thing is sure: Science has revolutionised the physical environment of the manager. Yet, the revolutionary technologies, new forms of energy and application of science to management have not succeeded in controlling hunger, pollution, congestion and the ugliness of our cities.

The rapid progress of science and technology promises the promotion of human welfare, and at the same time imminent threats to universal security present the whole human race with a greater responsibility. The fate of all people is now inseparably linked together and cooperation and collaboration, dictated by appreciation of every aspect of the common human position, is essential for the survival of mankind.

This should be the function of management. It should make desirable changes now and so lay the basis for changes in the future. At present, with all his knowledge and techniques, the manager-scientist should be able to predict such changes.

The term used above - manager-scientist - is used in this context expressly to imply the equality

of both partners - science and management. It is vitally important that science now begins to speculate about management and develop appropriate and useful explanations of the world of management.

The prevalent, confused state of mind must make way to the realisation that management and science are, and must be, a unity.

Science must be managed in such a way that management becomes science. When science changes management, it must recognise that the environment of management is changed too, and science must be able to predict the future environment resulting from its work. Science must provide for a universal education in management sciences, and use the scarce management science resources to solve serious problems only.(14)

The term 'management science' should now be qualified. What should be understood by this discipline? What kinds of results can we expect from this science?

These questions may be answered in the following terms :

(1) The bulk of management science is concerned today with the physical-social inter-disciplinary system. Management science is oriented towards decision analysis. There are two parts of such a study : (a) the

system, influenced by the decision-maker, the performance of which management science wishes to control, and (b) the controlling system, the decision-makers. The total subject-matter is made up of knowledge about behaviour of physical objects or systems (e.g. production process), and human beings (decision-makers and other humans in the system being controlled).

The task of the decision analyst is to solve specific types of problems by using models (procedures). The social element provides the decision criteria (measures of effectiveness - profit maximisation in whatever form it is to be found), and the physical element supplies the models.

(2) Information collection, transfer and handling are excluded from the majority of such models. (However, management scientists could, profitably, become very much more involved in the design of information systems. The construction of models frequently identifies new information requirements or modifications in the form of existing information. They could contribute to information system design on (a) choice and definition of measures of performance, (b) problems of the accuracy of information.)

(3) Social phenomena of human motivation are also generally excluded from models. It can be

> said that management science, following the pattern of classical economists, has been, up to now, studying 'dehumanised' business. Only very recently, a full interdisciplinary view of business problems, including simultaneously physical, informational, economic and economic behavioural variables, has been adopted.

The manager does not find many readily available laws such as are found in physics, chemistry, engineering and, perhaps, economics. The management scientist has to bring laws and principles together so that the impact of alternative actions can be expressed. His knowledge resides in his procedures for tackling specific types of problems. So we call him a decision-technologist because he does not develop law-like hypotheses himself, and management science (or science of management?) can then be understood to mean the application of rational and scientific values to all planes of human life, but especially to life as it is found within complex organisations like business and the military and government agencies.

4.2 Methodology of Management

A survey of the literature and works on methodological problems of management science appears to indicate that some experts believe that scientific methods in physical sciences are in some way different in principle from the scientific method used by management science.

Clearly, the underlying philosophy of any scientific method in any area - observation, theory, prediction and verification starting with facts and ending with facts - is no less relevant to management science.

They seem to forget that appropriate conditions leading to this deterministic structure must first of all be correctly identified. That this identification is difficult in management science one cannot doubt because new conditions are being continuously generated all the time, and the application and development of management sciences will obviously influence this. Management scientists should strive to find out the reasons for this difficulty in their discipline.

Our conclusion, therefore, must be that the method cannot be different. What is different is only the subject-matter.

4.3 Techniques Used By Management Science

The techniques assembled in Figure 3 cover an enormous area and penetrate into every function of management. They range from the relatively simple to understand and apply as a routine, to others calling for considerable expertise, and therefore to be applied only by specialists.

Techniques cannot be applied like universal medicine to cure the company's problems; these do not always come in easily recognisable forms with clearly defined characteristics as shown above.

Figure 3 : Techniques Used By Management Science

Techniques	Skills
Corporate planning	General management, mathematics, economics
Decision theory, decision trees, game theory	Statistics, economics
Company models	Mathematics, statistics, economics
Discounted cash flow, net present value	Mathematics, economics, accounting
Replacement theory	Statistics
Costing systems	Accounting, computing
Reporting by responsibility	General management, psychology
Management by exception	Accounting, statistics
Systems analysis	Accounting, mathematics, computing
Computers for data processing	Computing, accounting
Computers for information retrieval	Computing
Random observation	Measurement, elementary statistics
Critical path method	Elementary computing
PERT	Computing, elementary statistics
PERT/cost	Accounting, statistics, computing
Branching networks, resource allocation, use of computer	Mathematics, computing
Exponential smoothing, moving averages	Statistics
Market research	Statistics, economics, psychology
Time series analysis	Statistics, economics
Regression analysis, Box-Jenkins	Statistics
Use of computers with forecasting techniques	Statistics, computing

Figure 3 (cont.)

Techniques	Skills
Value analysis	Economics, engineering
Marginal costing, contribution analysis, profit volume ratio, breakeven charts	Economics, accounting
Linear programming	Mathematics, computing
Ergonomics	Physiology, work study, engineering
Production control by computer	Mathematics, statistics, computing
Simulation Monte Carlo	Statistics, computing
Queueing theory	Statistics
Statistical quality control	Statistics
Process control by computer	Computing, systems engineering
Evolutionary operation	Statistics
Adaptive control	Statistics, cybernetics
Mathematical programming	Mathematics, computing
Method study	Measurement, engineering
Incentive schemes	Psychology, engineering, accounting
Productivity bargaining	Business policy, psychology
Programmed learning	Educational methods, psychology
Business games	Mathematics, computing, economics
Job description, job evaluation, merit rating, salary progression curves, time span of discretion	Personnel, psychology
Manpower planning	Personnel, statistics
Intelligence, personality and aptitude tests	Personnel, psychology
Quality protection	Statistics
Statistical stock control, economic batch ordering quantities	Statistics, economics

Figure 3 (cont.)

Techniques	Skills
Statistical design of experiments	Statistics
Scientific calculations on a computer	Mathematics, statistics, computing

Information theory and cybernetics have not yet developed beyond the research stage.

Brainstorming calls for no specialist skills - or rather for the skills of as many specialists as may be concerned with the problem.

Source : B.T. Boulden, Professor of Business Studies at Warwick University: Management Today - Annual Review 1972: p.13.

Figure 4 : Some Proven Applications of Management Science Techniques

Forecasting demand for consumer products

Scheduling projects (PERT)

Planning production (short-term)

Controlling inventory of all types

Purchasing order size decisions

Planning promotion (advertising) levels

Locating warehouses

Selection of projects in which to invest capital

Forecasting national economic trends

Scheduling aircraft (in airlines), ships, freight cars (in classification yards)

Routing aircraft

Planning service facilities at ticket (and similar customer service) counters

Reducing turn-around time of ore transporting ships

Plant layout

Purchasing of inputs for blast furnaces

Routing work in a steel plant

Reducing trim waste in slitting processes

Minimising energy used in steel works

Planning maintenance activities

Procedures for purchasing production facilities

Refine product scheduling

Managing deliveries of petroleum products

Estimating demands for utilities (electricity, gas), short and long term

Planning utility capacity requirements

Scheduling and loading power plants

Mineral prospecting

Evaluating mineral deposits

Hospital traffic (queueing)problems

Estimating demand for hospital services

Product selection in textile mills

Raw material purchasing for textiles

Use of land in agriculture

Scheduling of fermentation and filling processes in pharmaceuticals

Source : Compiled by the writer from many sources.

Even isolating symptoms and converting these into a description of the problem can prove extremely difficult because very often their source cannot easily be found.

In addition to these difficulties, men may, for example, have to be trained to use the technique as routine; fears of disruption - rational or irrational - may have to be overcome, otherwise changes will be difficult to carry out and will only slowly become effective.

Figure 4 shows some proven applications of management techniques.

Thus judgement - which is non-quantifiable but informed by logic, imagination and experience - can seldom be ignored even when applying sophisticated, advanced techniques.

4.4 Physical and Social Elements - Quantification and Measurement

In its techniques, management science demonstrates clearly its striving for quantitative measurements in fields in which the necessary conditions are not present.

We are, obviously, not suggesting that it should not be so as this would amount to our advocating the removal of its scientific rigour. What we really mean is that management science should acquire a clearer understanding of the limitations

of measurement. As we know we can measure any object or any event in any way we wish, but the real problem is how to use this measurement. Our analysis shows also, that there seems to be a tendency in management science to accept some results without any experimental evidence. This points clearly to a lack of a methodology of testing.

Management science has to accept the use of human beings to contribute some judgements to the situation, but should it not first of all examine the nature of such judgements, and the control of their use in the problem-solving process? What kinds of methodological problems are involved here?

Management science, as we have already stated, seems to be oriented toward model constructing. However, a procedure has not yet been developed to find out how manager's experience could be formally incorporated in such models. Surely, it is of vital importance to study the concept of experience? If, in a problem-solving situation, we decide to rely upon it or reject it, what are the methodological problems involved?

From some (more popularising approaches?) one also gets the impression that one can be scientific without being mathematical. But can one? Is not logic in itself mathematics? Furthermore, variables cannot be related one to another without a mathematical presentation.

We may, obviously, analyse any situation using sophisticated mathematics, and, for example, simulation is often presented as a methodological approach specific to management science. But is it? Is it not used also in physics and biology? Moreover, simulation does not optimise. The model simulates only the operations of the enterprise on a computer given a set of assumed conditions.

Some experts even practise prediction of social events from untested mathematical statements thus showing their basic disregard for scientific rigour, and so carry out their investigations to a degree of mathematical sophistication in areas that are neither fruitful nor desirable, and neglect those areas where even a simple investigation is urgent. Such an activity points clearly to their inability to define the real problems. This does not mean, however, that, if problems are really complex, sophisticated techniques should not be used to solve them.(15)

But we can propose any important solution only if we take into consideration both the technical ability and the likely attitude of people involved. Predictions, no matter how well substantiated they may be, will prove wrong rather than right according to what people decide. Here again management science is found wanting. With very few exceptions it does not study these features scientifically. There

must surely be ways to explain the behaviour of people under certain conditions. Furthermore, we all know the difficulties of determining the "objectives". Management science is unable to offer us a methodology of attaining them.

All these findings lead to a conclusion that there is, at the moment, no 'management science'. Should we abandon all hope that one day 'management science' may become a real science? No-one knows, but unless we conceive a universe of problems highly interconnected, in which we could determine the circumstances under which problem situations fall into one class rather than another, and the circumstance in which one procedure, rather than another, is appropriate, there seems to be no way in which so-called 'management science' might indeed become a rigorous science.

4.5 Summary

Let us now summarise the difficulties and barriers experienced by management science :

(1) The difficulty of measuring outcomes.

(2) The difficulty of separating the relevant from the irrelevant.

(3) The difficulty of discovering what is relevant.

(4) The difficulty (if not impossibility) of prediction in behavioural sciences.

(5) The difficulty of distinguishing resources.

(6) The difficulty of designing suitable criteria for making decisions.

Our analysis of the nature of problems led us to conclude that 'true' decision-making models are still non-existent because very many problems still lie outside the capabilities of so-called 'management science' to resolve them. An enormous amount of work will be required before management science can be called a true science.

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PART II : PLANNING AS A PART OF THE DECISION PROCESS

5. PLANNING WITHIN THE CONTEXT OF MANAGEMENT PROCESS

5.1 Overall Analysis of Management Decision Cycle

On the basis of the foregoing analysis we define management science as a normative study of interdisciplinary systems involving human participants. Historically, this study has been heavily biased toward the process by which physical resources are converted. However, traces of a more balanced view of physical, social and informational aspects can already be discerned.

Management science seeks to guide and change organisations in their attainment of specific purposes (e.g. profit, personal goals of participants, etc.). Planning pursues an identical aim - to guide and adjust (change) organisations through specific means of strategies, policies, rules and budgets.

What, then, is the relationship between management science and planning? The answer is simple : the normative aspect of planning is a part of management science.

This raises two important questions :

(1) What are the parts of management science that are of major interest to planners, as far as the normative aspect of planning is concerned?

(2) What kind of descriptive knowledge should the planner acquire?

In order to analyse the first question we have to place planning correctly within the context of management science, and to do so, we must obviously start with the management process itself.

The second question can only be answered later.

Most scholars and practitioners agree that managing means getting things done through and with people. Let us analyse the present confusion by comparing some examples of the management process.

E.F.L. Brech[1] defines management as follows :

"A social process entailing responsibility for the effective and economical planning and regulation of the operations of an enterprise in fulfilment of a given purpose or task, such responsibilities involving :

(a) judgement and decision in determining plans, and the development of data procedures to assist control of performance and progress against plans;

(b) the guidance, integration, motivation and supervision of the personnel composing the enterprise, and carrying out its operations."

H. Koontz and C. O'Donnell[2] offer a definition of the total task of management in the following terms :

(1) Planning - which involves a selection of enterprise and departmental objectives as well as determination of the means of reaching them. It is thus a rational approach to preselected objectives.

(2) Organising - this function is essentially aimed at developing an intentional structure for effective performance, a network of decision communication centres from which to secure coordination of individual effort toward group goals.

(3) Staffing - this managerial function involves manning the organisation structure through proper and effective selection, appraisal and development of personnel to fill the roles designed into the structure. All managers have responsibility for staffing.

(4) Directing - this is the interpersonal aspect of managing by which subordinates are led to understand their tasks and contribute effectively and efficiently to the attainment of the enterprise objectives.

(5) Controlling - this function implies measurement of accomplishment of events against the standard of plans and the correction of deviations to assure attainment of objectives according to plans. Control is necessary to measure progress and may result in setting new goals, formulating new plans, changing the organisation structure, improving staffing and making major changes in the techniques of directing.

For Newman, Summer and Warren[3] managing is a social process because it comprises a series of actions that lead to the accomplishment of some objective, and because these actions are principally concerned with relationships among people. According to these authorities, managing is so complex that our minds cannot consider all its facets at the same time. We must, therefore, divide the whole activity into parts in order to grasp the full significance of each.

According to this source, a highly useful way of dividing up the total task of management is in terms of :

(1) Organising - Various tasks must be assigned to various people and their efforts must be coordinated. Organisation is to be viewed as a social arrangement because it is composed of people rather than physical objects. The men who are assigned tasks are independent, self-respecting individuals with a variety of motives.

(2) Planning - This process can be best understood if the basic stages in making a decision are examined : diagnosing the problem, finding good alternative solutions, projecting the results of each alternative, and, finally, selecting the one course of action to be followed.

(3) Leading - Clear plans and sound organisation set the stage, but a manager must also

provide leadership by striving to integrate the needs of people with the welfare of the organisation or the department. He has to act so as to balance individual motivation and cooperative efficiency.

(4) Measuring and controlling - A manager has to measure his progress if he is to attain his objectives. If operations do not proceed according to the plan, he has to take corrective action.

Other scholars, like Terry,[4] say that the manager's function is to create within the enterprise the environment which will facilitate the accomplishment of its objectives. One must clearly distinguish between those operations like selling, manufacturing, accounting, engineering and purchasing, which differ from enterprise to enterprise and management functions which always remain the same. The most useful method of classifying the management function is to group them around the activities of planning, organising, staffing, directing and controlling. Theoretically, planning comes first and organising, staffing, directing and controlling follow. However, coordination is the essence of managership.

According to Joseph L. Massie[5] different authorities offer different names for the key functions of management. There is, however, general agreement on most of the actual duties of a manager. He suggests that the job of management can be described by the following functions :

(1) Decision-making - the process by which a course of action is consciously chosen from available alternatives in order to achieve a desired result.

(2) Organising - the process by which the structure and allocation of jobs are determined.

(3) Staffing - the process by which managers select, train, promote and retire subordinates.

(4) Planning - the process by which a manager anticipates the future and considers alternative courses of action open to him.

(5) Controlling - the process that measures current performance and guides it towards some predetermined goal.

(6) Communicating - the process by which ideas are communicated to others in order to effect a desired result.

(7) Directing - the process by which actual performance of subordinates is guided toward a common goal.

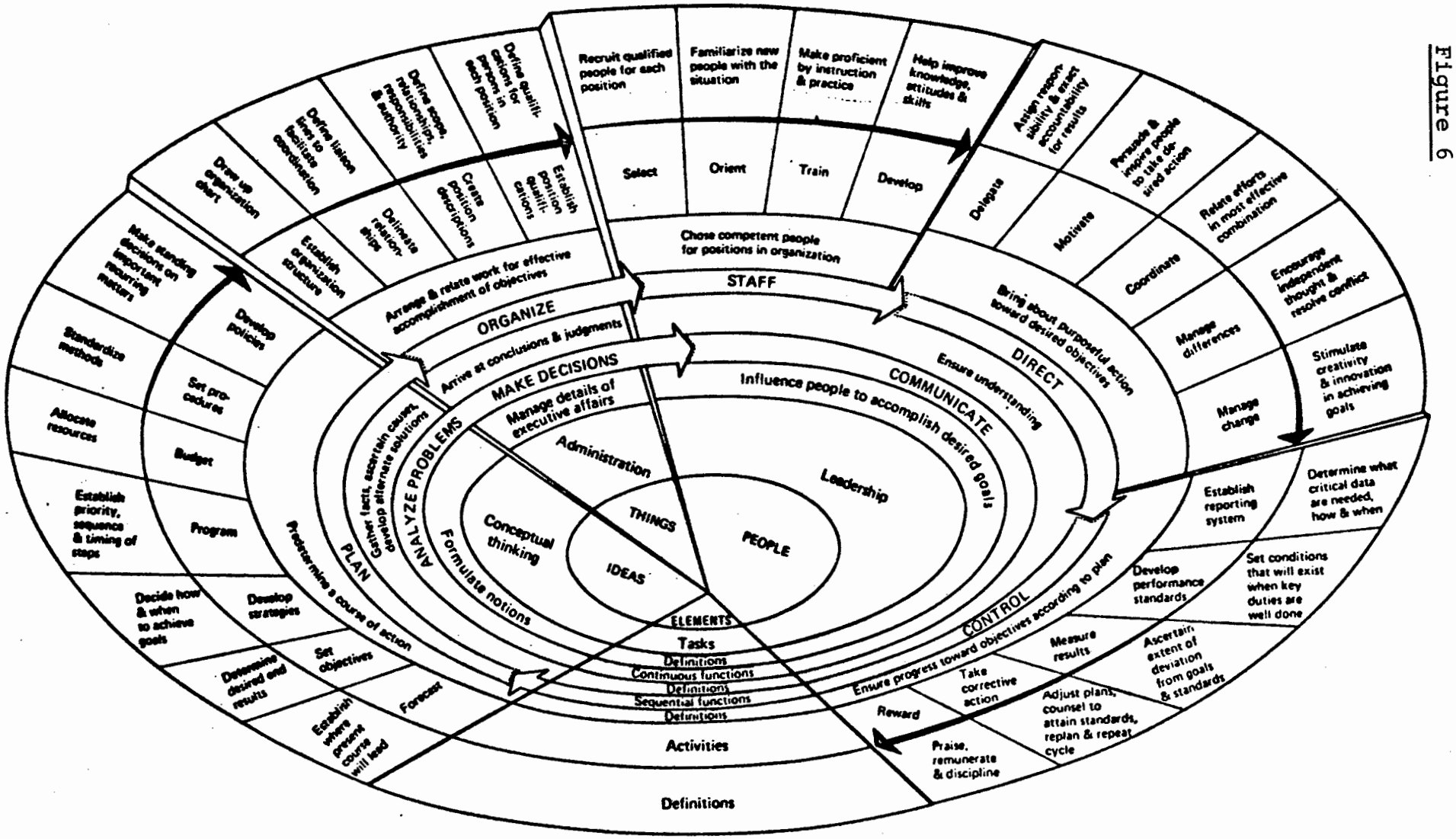
Massie adds that all these functions are closely interrelated. In the light of these often confusing and contradictory definitions one interesting approach, overcoming the problem of priorities of functions in the management process, is the analysis offered by R. Alec Mackenzie[6] (Figure 5). He calls his analysis very aptly 'The Management Process in 3-D' and offers, in comparison to the other approaches, summarised

Figure 5 : MacKenzie's Detailed Analysis - Extracts

	Activity	Definition
1. Plan	(a) Forecast	- Establish where present course will lead
	(b) Set objectives	- Determine desired end results
	(c) Develop	- Decide how and when to achieve results. (From alternative courses accumulated by continuous process of appraisal and decision)
	(d) Programme	- Establish priority, sequence and timing of steps
	(e) Budget	- Allocate resources
	(f) Set procedures	- Standardise methods
	(g) Develop policies	- Make standing decisions on important recurring matters
2. Organise	(a) Relationships	- Structure
	(b) Positions	
	(c) Qualifications	
3. Staff	(a) Select	
	(b) Orient	
	(c) Train	
	(d) Develop	
4. Direct	(a) Delegate	
	(b) Motivate	
	(c) Coordinate	
	(d) Manage difference	- Encourage independent thought - Resolve differences
	(e) Manage change	- Stimulate creativity and innovation in achieving goals
5. Control	(a) Reporting system	
	(b) Develop performance standards	- Set conditions that will exist when key duties are well done
	(c) Measure results	- Ascertain extent of deviation from goals and standards
	(d) Take corrective action	- Adjust plans, counsel to attain standards - Punish or reward - Replan and repeat cycle

Source : R. Alec MacKenzie, "The Management Process in 3-D", Harvard Business Review, November-December 1969.

Figure 6



A model of the management process. SOURCE: *R. Alec MacKenzie, "The Management Process in 3-D,"* Harvard Business Review, *November–December, 1969, p. 87. (© 1969 by the President and Fellows of Harvard College; all rights reserved.)* Used by permission.

above, a real three-dimensional insight into the mechanism of the management process.

Figure 6 shows the different elements, functions and activities which are part of the management process. At the centre are people, ideas and things, for these are the basic elements and components of every organisation with which the manager must work. To use MacKenzie's own words :

"Ideas create the need for conceptual thinking; things for administration; people for leadership. Three functions - problem analysis, decision making and communication - are important at all times and in all aspects of the manager's job; therefore, they are shown to permeate his work process. However, other functions are likely to occur in predictable sequence; thus planning, organising, staffing, directing and controlling are shown in that order on one of the bands. A manager's interest in any one of them depends on a variety of factors, including his position and the stage of completion of the projects he is most concerned with. He must at all times sense the pulse of his organisation. The activities that will be most important to him as he concentrates - now on one function, then on another - are shown on the outer bands of the diagram."(6)

However, because of the increasing complexity in both external and internal environments even this comprehensive concept is not fully satisfying, and so some scholars strive to adopt a 'total

enterprise' approach to the management process.

This involves dealing with the whole Gestalt of the enterprise. The analyst is obliged to identify his own values, feelings and perceptual biases as influencing any data he abstracts from the totality. The emphasis is on identifying tendencies and uniformities in the phenomena, and identifying patterns of relationships. The limits and constraints must also be identified. Within these limits it is then necessary to predict the expected changes in the total pattern, and in the other components resulting from changes in any or more of the component variables. Every enterprise, no matter how simple its operations, how few its members, or how limited its activities, is a complex entity which defies a neat dissection and classification. The enterprise is usually viewed as being composed of a network of members who possess differing types and degrees of competence and skills; differing values, personal goals and commitments; and different degrees of interpersonal contacts, cooperation and influence. These members have available to them, immediately or potentially, an aggregation of resources (capital, facilities and equipment, market position, supply position), and these resources, on hand or potentially available, determine the range of action alternatives which are realistically available at a point in time. The members then operate the resources in an environment which provides the enterprise's opportunities for service and contribution, and which, at the same time, makes certain demands upon the firm's performance.

Whatever analysis of the management process we examine, each one points clearly (in spite of all the semantic problems, confusion and contradictions), to six basic steps, six major groups of management decision. These are : (1) Responding to problems, searching for opportunities and periodically reviewing past performance; (2) Decision analysis; (3) Action decision; (4) Programming; (5) Implementation; and (6) Performance analysis and control.

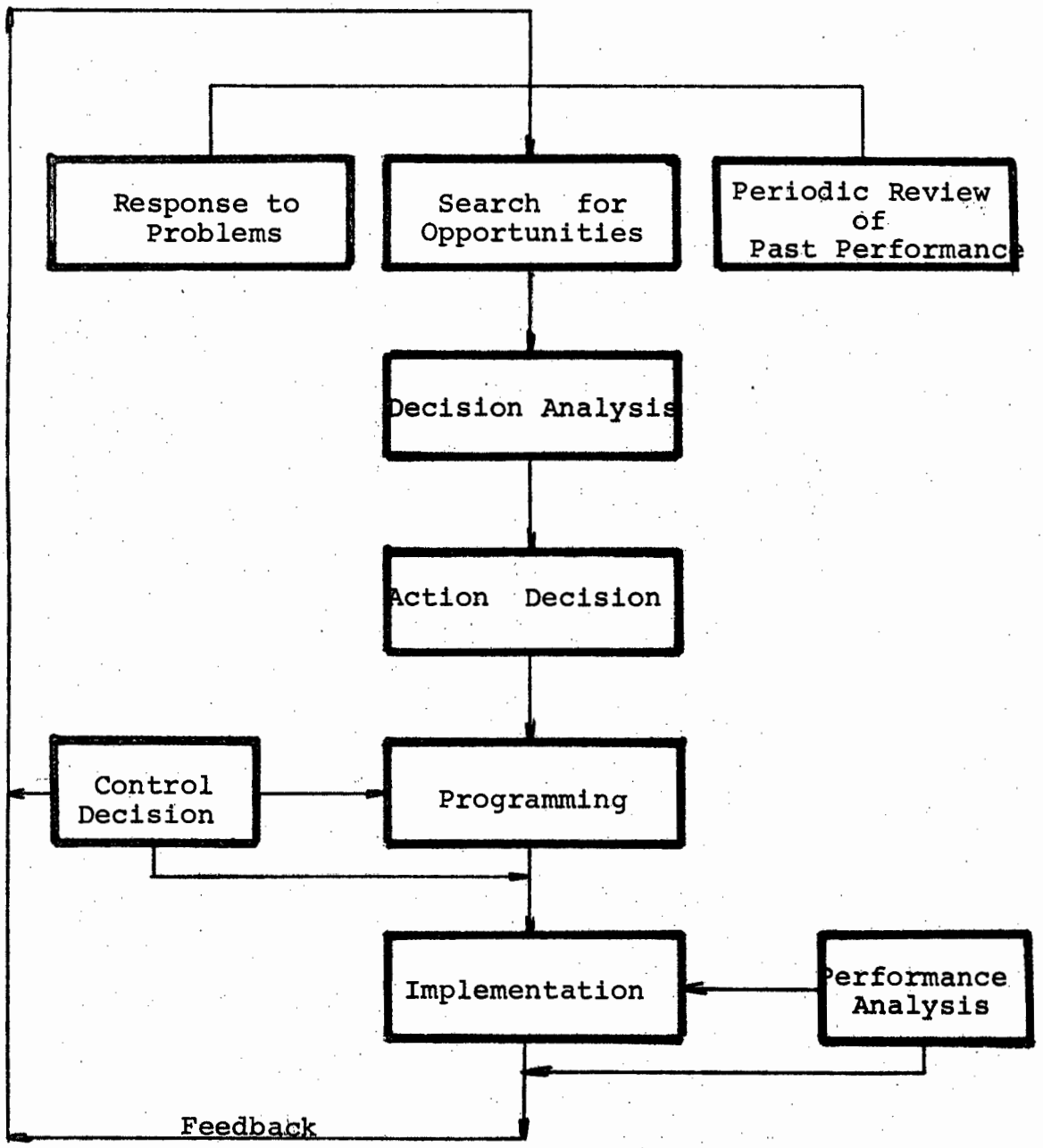
5.2 Decision Analysis

(1) The first step represents (as illustrated in Figure 7) three activities : (a) responding to problems; (b) searching for opportunities; and (c) periodically reviewing past performances.

Management science, as defined above, is concerned with all of them, but it has clearly neglected the problem of search. Many models assume the availability of opportunities at the outset of the analysis.

(2) Decision analysis is the second step of the management decision cycle. Management scientists have, in the past, focussed their attention mainly upon this stage. The majority of their models are concerned with the analysis of consequences of given alternatives, under given decision criteria. Present planning models, however, are more interested in the programming of firms' activities than in decisions underlying these activities. All these approaches offer "checklists" to 'analyse

Figure 7 : Management Decision Cycle



the problem', to 'select the preferred course of action', etc. They do not attempt to study how these decisions were arrived at. Neither do they provide for explicit recording of the decision analysis. The executives are assumed to carry everything in their heads.

(3) The aim of the previous step is to predict consequences of alternatives, or expressed differently, to determine how a decision-maker chooses among alternatives given the consequences. In this step, the decision analysis is separated from the decision phase in order to distinguish the problem of building decision models from the problem of formulating decision criteria (utility function).

(4) Once a decision has been taken, it is translated into specific action patterns for implementation. The important management tasks during this stage are : (a) to programme activities to support decisions; (b) to allocate and schedule resources to support decisions; (c) to establish work flows in the firm; (d) to establish patterns of authority-responsibility relationships; and (e) to establish information-flow networks for communication.

This area of activities actually gave birth to planning, and many planners see in programming, as defined above, the core and the substance of planning. One can find, therefore, an impressive quantity of models and formats available in this field of activity.

(5) Implementation is the fifth stage of the management decision cycle. It encompasses the following activities : (a) assigning the detailing of plans and programmes, and disseminating information about them; (b) obtaining commitment to plans by responsible participants; (c) initiating appropriate and adequate organisation action; (d) assuring coordination of all related activities; and (e) leading and motivating participants.

Our study of literature has shown that even the best prepared programmes may fail during this stage unless the commitment of those who carry them out has been assured. Regarding the problem of participation versus authoritarian management, the results obtained from both approaches are far from conclusive, and neither the theoretical nor the practical issues are resolved.

(6) The performance analysis and control - the last two stages of the cycle - have not often been included in the planners' activities. However, they will have to be included in future planning activities, or planners will have to, at least, concern themselves with some aspects of measurement and control problems.

A comparison of performance to plans and programmes leads to four possible types of decisions : (a) to modify or adjust implementation so as to reach the planned objectives; (b) to search for alternative courses of action different from those being implemented because

the strategic decisions underlying the alternatives programmed and being implemented were at fault; (c) to modify the activity (reprogramming) without changing the basic objective and nature of this activity; and (d) to revise the decision analysis procedure because it was unable to choose good alternative courses of action despite their availability.

6. NATURE & TYPE OF DECISIONS DEALING WITH MANAGERIAL PROBLEMS

6.1 Nature of Problems

It follows from our discussion that the practice of management is, in reality, that of making decisions. Compare the following statements :

"At the heart of all planning is decision-making, the selection of a course of action" (7)

"Managerial decision making involves a conscious choice on the part of the manager. By making such a choice, he comes to a conclusion and selects a particular course of action from two or more alternatives that are open to him." (8)

". . . is the focal, creative, psychic event where knowledge, thought and imagination are fused into action." (9)

". . . in other words, it is a process that cannot be explained by any formula. The primary characteristic of the process is that it involves uncertainty." (10)

The above statements confirm the fundamental importance of decision making for the practice of management and, hence, planning. A distinction, however, must be made between decisions concerning ends and decisions concerning means. The former are concerned with basic goals and involve value judgements as to what the organisation objectives should be. The other group of decisions deals with means of attaining the objectives.

Another set of decision categories distinguishes between strategic, administrative and operating decisions. Strategic decisions pertain to the relationship of the firm with its environment and are concerned with such problems as the firm's product-mix and extent of product diversification. Operating decisions are those dealing with pricing, marketing and production decisions designed to make operations profitable. Administrative decisions are organisational decisions concerned with problems of structuring of authority, of determining work flows and locating facilities. It is also possible to distinguish between routine and non-routine decisions. Routine decisions are repetitive in nature and follow established patterns of procedures.

There are many theories designed to show how decisions are, or should be, made in the business world. It is not our intention to describe them, but such theories could be roughly grouped into two broad classes :

(1) The behavioural theory of decision-making which deals with decision-making in practice, and with what factors affect these decisions (e.g. the environment, legal constraints, etc.).

(2) The normative theory which seeks to explain how decisions should be made in order to maximise the achievement of some objective. Economic models of firms involve normative decision-making.

H. A. Simon,[11] a noted behavioural scientist, suggests that decision-making comprises three principal phases : (a) finding the occasion for making a decision; (b) finding possible courses of action; and (c) choosing a course of action.

Executives of a large modern enterprise must spend a large portion of their lives surveying the economic, technical, political and social environment to discern new conditions, calling for new actions. Every new condition brings about problems, and we can, therefore, replace Simon's definition of decision-making above by one offered at the beginning of this century by John Dewey[12] who described the decision-making process as problem-solving by asking three simple questions :

- What is the problem?
- What are the alternatives?
- Which alternative is best?

Within a business enterprise, a variety of circumstances may give rise to problems : (a) internal reports may indicate poor operations; (b) external pressures (from customers, suppliers, government, bankers, employees or others) may create new problems even if the organisation is running smoothly; (c) executives themselves may initiate the problems (e.g. to improve the production process, to install a computer for production planning and scheduling, etc.); and (d) anticipation and forecasting opportunities and difficulties, and so meeting problems before they arise.

It is, obviously, important to be able to distinguish between apparent and real problems. We shall say that a real problem exists if some present or anticipated performance level is significantly below the firm's objectives, (e.g. growth, profitability, market share, etc.). However, not all firms make their objectives explicit, and so it becomes difficult to sort out the real problems from apparent ones.

Many problems do, therefore, exist in firms without receiving active attention, either because the causes of the problem may not be understood, or the problem may be recognised by people without the required authority or responsibility; management may also have neither the knowledge nor the data for coping with the problem, or in some cases, the problem may not be of sufficient priority to warrant attention.

Problems can be divided into two major classes : (a) evaluative and (b) developmental.

When alternative courses of action are completely specified in advance, and the solution consists of selecting the best of them, such problems belong to the first group. The second class of problems involves the search for instruments yielding a course of action that is better than any available at the time.

6.2 The Decision-Making Process

The manager in his decision-making, must interpret, classify, describe, explain, evaluate and predict. He is, however, distinguished from scientists in several ways. In the first place, there is an emphasis on evaluation, and most of all on prescription - two processes that involve value judgement. In the second place, he does not produce laws or other explanatory systems of wide generalisation, he uses them. He uses general truth to determine which data are appropriate, and which are the problem solution. He does not collect data himself to establish general truths.

The usually described model of the decision-making process is too condensed and may lead the manager to neglect certain crucial elements. A more realistic model considering decision-making as involving description, explanation, prediction and evaluation is shown below :

Prescriptive Decision (Decision prescribing the best solution to a problem)	Main Logical Processes
Process or Objectives or Events	Description
Problem Recognition Problem Classification Information Search Problem Explanation	Description Explanation Prediction
Problem Definition Identification of Alternatives Identification & Evaluation of Consequences Choice of Course of Action	Description Prediction Evaluation

The output from each of these individual processes can be regarded as a set of decisions in itself.

Throughout the decision-making process, assumptions are accepted when they seem reasonable. This is inevitable; they cannot all be checked because of the time factor involved. Yet, a mental review of all assumptions being made is a useful exercise because some assumptions are better treated as hypotheses and put forward for testing.

The conclusions that emerge from the type of exploration just described will be most useful in decision-making if they are summarised in terms of the following elements :

(1) What is the result to be achieved?

(2) What is the key obstacle to achieving this result?

(3) Within what limits must a satisfactory solution fall?

Our treatment of the decision-making process would be incomplete if we did not describe it in terms of (a) the people who make the decisions, and (b) the conditions under which the decisions are made. The distinction of the first classification is important for obvious reasons; the individual's decision may take one form, and a decision taken by a group whose multiple motivations are resolved by conflict or compromise, may take a different form.

The second form involves the interesting question of how to arrive at "fair" methods of optimising the

individual choices. It is a problem which has occupied scholars from many disciplines.

In making decisions, the decision-maker (manager) is confronted with three types of outcomes : certainty, risk and uncertainty. Thus he makes decisions (Fig. 8) under conditions of :

(1) Certainty, where each piece of information is known to result invariably in a specific outcome. Decision-making under certainty includes most of the problems and theories of choice that arise in the economic and behavioural sciences. It is typified by problems which can be expressed in the following form : given a set of possible alternatives, to choose one or more that will maximise (or minimise) a particular value. But the problem is to decide what value. This is often the most difficult part of the problem.

(2) Risk, where each alternative results in one of a set of possible specific outcomes, and the probability of each outcome is known. Risk has been defined as "a state of knowledge in which exact information leads to one of a set of specific outcomes each of which occurs with a known probability"[13].

There are two approaches used in arriving at a probability measure or risk - (1) by deduction (a priori) and (2) by empirical measurement (a posteriori).

Figure 8 : Techniques Used in Decision-Making

Decisions Assuming Certainty - Optimising Criteria Used

Breakeven Analysis
Minimum Cost Analysis
Linear Programming - Allocation of resources
Scheduling of single & multiple resources
Critical Path Scheduling
Time Charts
Interest Compounding
Depreciation Techniques
Replacement of Assets
Capital Investment Techniques

Decisions Assuming Risk - Optimising Criteria Used

Probability Techniques
Expected Value Technique
Discounted Decision Trees
Inventory Policies - Perishable products
Products with a salvage value
Incremental analysis
Variable lead time and demand rate
Simulation
Waiting Time Policy - Mathematical queuing models
Investments to Avoid Risk - Penalty estimates
Self protection
Quality control
Insurance

Decisions Assuming Uncertainty - Decision Criteria Used

(1) Maximax Criterion assumes greatest gains. The principle of choice is to identify the maximum gain possible for each alternative and then choose the course of action with the greatest maximum gain.

(2) Minimum-maximum Criterion, referred to also as "pessimism" criterion, assumes that the decision-maker will cut his losses by choosing that course of action for which the minimum payoff is maximum.

(3) Hurvicz Criterion allows a moderate outlook between the extremes of optimism and pessimism. The degree of optimism is established by a coefficient called alpha (α), which may take any value between 0 and 1,0. After deciding the value of alpha, maximum and minimum gains are identified for each alternative, then the maximum payoffs are multiplied by alpha and the minimum payoffs by 1 - alpha.

Figure 8 (cont.)

The two products for each alternative are added and the alternative with the largest sum is chosen.

(4) Minimax Criterion, referred to also as "regret" criterion, assumes that the assignment of probabilities to various states of nature is meaningless and the decision-maker minimises the maximum regret he might suffer. This is done by arbitrarily setting the largest payoff under each state of nature equal to zero. If the decision-maker then takes any course of action other than the optimum under that state of nature, he will realise a "regret" equal to the difference between the maximum payoff and the inferior payoff under that state of nature.

(5) Laplace Criterion (equal-likelihood criterion) makes use of probabilities attached to the various states of nature, and is based on the principle of insufficient reason which holds that if there is no reason to believe that one environmental condition is any more likely to occur than another, then the decision-maker may treat them as being equally likely to occur.

Source : "Economic Decision Models" by James L. Riggs, International Student Editions Ltd, Tokyo, Japan, 1968.

In the first case, we can compute the probability of an outcome with certainty without having to rely on past performance because deduction is made on the basis of assumed principles, provided that the characteristics of the eventuality are known in advance. Probability statements do not intend to predict an individual error; they merely state that, in a large number of cases, this is the only pattern that will be realised with certainty, if assumed probabilities do, in fact, hold.

The second method, predicting outcomes by empirical measurement, is based on actual experience in the form of past data. This approach assumes that what has happened in the past will continue in the future. From past data the statistical probability of an outcome can be calculated. The likelihood of occurrence can thus be classified as a risk.

Obviously, for such outcomes, techniques must be developed which will enable the decision-maker to compute the risk, and so minimise the risks inherent in a particular case. He can construct a frequency or probability distribution of outcomes.

(3) Uncertainty, where one or more alternatives result in a set of possible, specific outcomes, but where the probabilities of the outcomes are neither known nor meaningful. Techniques for dealing with this condition exist, but we

focus our attention on the development of a broader concept of uncertainty as a framework for certain classes of managerial problems.

6.3 The Value Dimension of Business Decision-Making

What are the values that guide the decision-makers (managers) in making business decisions? Do, can and should these values encompass more than the immediate profit making of the business firm? In viewing a business firm in the context of an economic system, one is confronted with a hierarchy of values. Since decision-making is the essence of management, the question of values cannot be ignored.

The life of a free enterprise is justified only as long as it serves the higher goals of the economic system - allocation of scarce resources through production and distribution or through the creation of economic utility. Free enterprise assumes that the system will survive automatically, but if the business decision-maker limits himself to a micro-view of his firm in a vacuum, his actions may erode the free enterprise upon which he depends for his long-term survival and growth. If private enterprise is to prevail, a management perspective cannot ignore the economic context in which the firm has its being and operates.

However, other values exist besides the economic values. The purpose of human society is greater than its economic survival and prosperity. Once economic survival is assumed, men's energies are

devoted to the civilising process, to works of literature, architecture, sculpture, music, and to the establishment of orderly societies. This raises many immediate questions about "social responsibility" in such decision matters as community welfare, air and water pollution, resource conservation and so forth.

In every business decision, the decision-maker (manager) reveals his own philosophy of life, as well as his personal values. In our Western cultural context, the ultimate goals or objectives of individuals are generalised as freedom, opportunity, self-realisation and human dignity. The decision-maker in business is forced to assess his economic decisions in terms of their social and human consequences.

Boundaries to the firm's freedom in pursuing objectives at a given level are set by goals or values at a higher level, and responsible management requires decisions and actions contributing to the firm's goals without violating higher values or goals. Human values should be placed above economic values. Value judgements the business decision-maker faces are those in which his decisions affect other human beings, be they consumers or employees.

6.4 The Two Approaches to Decision-Making in Management

Such a complex problem involving multiple goals leads to a great many difficulties in rationalising the decision process. Clearly, many of these multiple objectives, laudable as they may be, are not

compatible with each other, and this aspect has led to two distinct approaches to decision-making : (a) optimising and (b) satisficing.

(a) Optimising characterises the approach of economic man. To solve a problem, he prefers to define a single criterion or objective function, and he proceeds to determine a plan that will maximise the value of his function.

To solve multi-goal problems, he uses one the the following methods :

(1) Tradeoffs - If management is presented with sets of alternative solutions between which a choice must be made, a system of relative values and tradeoffs can be established. Certain parts of an objective will be sacrificed in order to attain a given increment for another objective, management being indifferent to the two alternatives involved.

(2) Ranking goals - When management refuses, or is unable, to provide a set of tradeoffs, it may, nonetheless, be willing to rank the goals in some order of preference. The optimiser will then proceed to determine the optimal solution for the first goal, then for the second, and so forth. This approach assumes, obviously, that once the first goal is optimised, there is still room for an optimal solution of the second goal, and so on.

(3) Converting goals into constraints - In order to avoid a unique solution that simply ignores some or most of the stated goals, this method determines the minimal level of performance that would be acceptable for these goals.

(4) Target setting - If the goals are set in the form of targets, then the difference between the actual value of a given goal and its target becomes itself a measure of performance. This difference is expressed in the form of a slack variable. Similarly, slack variables for other goals are defined. The objective now becomes that of minimising a function of these slack variables.

(b) Herbert A. Simon[11] has suggested a concept of satisficing based on his theory of 'bounded rationality' which describes the 'behaviour of human beings who satisfice because they have not the wits to maximise'. This means that if a decision-maker is unable to reconcile conflicts between goals through tradeoffs, or if he is unwilling to express or set some of his goals in the form of utility function, then he determines not the best solution to a problem, but a solution that is 'good enough'. The question is, obviously, what is good enough, and it is largely answered by concensus of opinion. Thus, in contrast to optimising, the satisficer is not looking for a unique solution and he does not express explicitly how

the goals are to be ranked or how conflicts between them can be resolved.

There are two ways in which satisficing can be undertaken :

(1) Norm setting - the goals are converted into measures which, if attained, are considered to be 'good enough'.

(2) Interval programming - There are instances in which management is anxious not merely to set a norm of performance in the form of a lower unit, but also to specify an upper unit. Thus, a range is defined or an interval, hence the term 'interval programming', and any solution that yields a level of performance within the range is considered acceptable.

As Simon has remarked, satisficing is much more prevalent than optimising and the reasons are not difficult to elucidate. Every strategic action must strike a balance between many conflicting values, objectives and criteria, so that it will always be suboptimal from any single viewpoint. A manager will, therefore, be satisfied to achieve what is adequate and feasible in the situation rather than what, from one single viewpoint, may be elegant and optimal.

6.5 Model Construction

In ordinary language, the word 'model' is used in various ways. Models are vitally important to scientific work, and in any intellectual endeavour. In our language the term 'model' means a structure of symbols and operating rules which are supposed to match a set of relevant points in an existing structure or process. Each model implies a theory asserting a structural correspondence between the model and certain aspects of the thing supposed to be modelled and is, therefore, an abstraction of reality (see page 85).
We can think of models as serving, more-or-less imperfectly, four distinct functions : (1) the organising; (2) the heuristic; (3) the predictive; and (4) the measuring /or mensurative/.

By the organising function we mean the ability of a model to order and relate disjointed data, and to show similarities or connections between them which had previously remained unperceived. The heuristic function of a model may be independent from its orderliness or organising power, yet it may lead to discovery of new facts and new methods. Little has to be said about the predictive function of a model, beyond the well-known requirement of verifiability by physical operations. There are, obviously, different kinds of prediction - from simple yes/no predictions to completely quantitative ones which may answer the questions of when and how much. Evaluation of a model consists of examining its performance with regard to each of the above four functions. To these considerations

should be added three additional ones; originality, simplicity and realism.

Models can be and are used in simulation. Simulation is sometimes known as "computer simulation", "analytical simulation" and "symbolic system simulation". The last category is sometimes represented by the now famous Black Box with its many dials and meters. Nowadays simulation is extensively used as a training technique, and the form generally used is that of "the business game". Since their inception many of these games have been devised, some for training only, others for research and teaching, some simple, others rather complex.

Human system simulation (man and the Black Box) uses business games as a laboratory for research into management control principles, and thus bears a striking resemblance to the type of sociological research now generally known as a "small group research". Instead of using human beings in the study of human behaviour, computerised models of such behaviour are used. Such models are useful, even though not all types of sociologically significant behaviour can be programmed. Models for research into management control systems can be envisaged, and the details of such models will depend upon what is being researched.

Every decision-maker will have an implicit model (e.g. a set of relationships) in his mind concerning the problem area with which he is concerned.

Ackoff[14] identifies three types of situation with

respect to modelling and managerial decisions, and those are characterised as decision situations :

(1) That can be modelled and solved - Optimal or approximately optimal solutions are derived so that the decision can be made routine (e.g. purchasing, production, distribution situations);

(2) Those that can be modelled but not solved; that involve a dialogue between a decision-maker and a model to compare alternatives and research for an acceptable solution;

(3) Those that cannot be modelled because of lack of resources, understanding or time - In these cases it may be possible to make representation of the decision-maker's subjective idea of the decision procedure and to use this to provide comparative evaluations in the same way as models are used in the second case.

A simple definition of a model may then read : A model is a more-or-less abstract representation of a system and helps to improve the quality of decision-making. In this context, systems are understood as a set of needs or desires and inter-related activities connected by the flow of information. This flow of information leads to decisions bringing about actions designed to yield some outcome that will satisfy the needs or desires. Models of problem situations should always take the form

$V = f(X_i, Y_j)$ (see page 19)

and they must satisfy two conditions ;

(1) At least one of the 'input' variables (i) can be controlled by the problem-solving manager (it must model his possible choices of action).

(2) The 'output' variable (V) must be a measure of the value of the alternative choices to the manager.

All models of problem situations are generally simpler than the situations they represent - which are usually very complex.

An exact representation (even if it were possible) would lead to hopeless mathematical complexities, and a balance must, therefore, be struck by the model builder between accurate representation and mathematical managability. However, the simplifying assumptions must be made explicit so that the decision-making manager can determine in what direction and how much they falsify the problem situation.

When probabilistic variables are involved, a model is constructed involving assumptions concerning the distribution of probabilistic variables relating either to their form (e.g. normal, Poisson, exponential distribution) or to the values of the distribution's parameters. Obviously, one assumption is made - that the characteristics of the past distribution will be the same as those of the future. Such models are called sequential decision models, but even in this case the model must be simple, robust, easy to control, adaptive and as complete as possible and easy to communicate with.

It is essential for decision-makers to understand

both the merits and limitations of their models. In some problem situations, the values of decision variables are limited or constrained. Such decision models may consist of a set of equations and inequations, the core of which always takes the above prototype form.

There is, of course, no escaping the inevitable subjectivity of any decision in the final reckoning, because decisions are ultimately taken by human beings using human scales of values.

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PART III : SURVEY OF CONTEMPORARY LITERATURE ON PLANNING

7. THE TRADITIONAL APPROACH

7.1 Definitions of Planning

By means of the management decision cycle, we have described the field of normative knowledge about interdisciplinary purposive systems - such as business firms - of concern to business planners. In our analysis we have attempted to single out the areas which are of special interest to them. We are now in a position to describe both planning and the job of the planner. Tentatively, we shall define planning as a search for threats and opportunities, analyses of them, based on the firm's capability profile, selection of the best course of action to exploit opportunities and avoid obstacles, programming and scheduling of the implementation of this action and improving the process through the feedback of performance. This lengthy definition could be replaced by an abbreviated one which would read : "Planning is formulating formal guidelines for future actions, and defining constraints for a firm's behaviour".

Let us now compare this definition with those found in the contemporary literature on planning. Definitions of planning are legion in the literature, but most are of little immediate or practical value because of their broad context.

Peter Drucker, for example, defines planning as : ". . . a continuous process of making present

entrepreneurial decisions systematically and with best possible knowledge of their futurity, organising systematically the effort needed to carry out these decisions, and measuring the results of these decisions against expectations through organised systematic feedback"[1].

W. Warren Haynes and Joseph L. Massie[2] have the following to say about planning : "Planning has been long recognised as one of the basic functions of management. The first manager was by his very nature a planner, for he made decisions covering the nature of his undertaking. Yet, paradoxically, planning is one of the least clearly defined subjects in the field, one in which conceptualising and generalising has made the least progress. As a result, it is one of the most difficult topics to discuss. We are not yet ready for a complete definition of planning. But it is necessary to state already that planning is concerned with at least two major elements : (1) the future, and (2) the relation between ends and means, between goals and ways of achieving those goals."

Newman, Summer and Warren[3] attempt their definition of planning as follows : "Planning is a basic management task, one that has a major place in our overall division of management functions along with organisation, leading and controlling. The process of planning covers a wide range of activities, all the way from initially assessing that something needs doing, to deciding finally who does what, when and how. Planning is much broader than compiling and analysing information, or of dressing up ideas

of what might be done. It is more than logic, imagination or judgement. It is a combination of all these that culminates in a decision - a decision about what should be done."

The above authors[3] say that managers can improve their ability to plan - to make decisions - by asking two questions about the process : (1) What are the elements or phases of making a plan? (2) How are these phases actually carried out in an organisation?

They discuss each of what they call the basic phases of decision-making, in the following order :

(1) Diagnosis - a prerequisite for sound decisions;

(2) The creative element in decision-making showing the alternative courses of action;

(3) Comparing courses of action; and

(4) Making the choice.

They say further : "Throughout our discussion on planning and decision-making, we shall often have to skate on thin ice when we deal with the diverse, mysterious working of the human mind." And they add : "It may be a century before we have realiable scientific knowledge of precisely what happens in a man's mind when he makes a decision. Fortunately, although our knowledge is incomplete, enough is known to make an examination of the planning process very feasible."

The following definition on planning can be found in the work of Koontz and O'Donnell[4] : "The most

basic of management functions is planning, the selection from among alternatives of future courses of action for the enterprise as a whole and each department within it. Planning is deciding in advance what to do, how to do it, when to do it and who is to do it. Planning bridges the gap from where we are to where we want to go. Planning is a conscious determination of courses of action, the basing of decisions on purpose, facts and considered estimates. The essential nature of planning can be understood through four basic planning principles : (1) contribution to objectives, (2) primacy of planning, (3) pervasiveness of planning, and (4) efficiency of planning."

Martin Starr in his work, "Management - A Modern Approach"[5], offers the following definition : "The term 'planning' is generally used ambiguously by managers but a rational definition of planning can be obtained by contrasting plans and policies. A key factor is the degree to which decision environments are repetitive; stable, recurrent environments lend themselves to policy formulation, whereas transient environments (i.e. those unlikely to occur) require planning."

This writer[5] examines three types of planning :

(1) Fully constrained planning which appears when the future environment can be predicted with a high degree of certainty.

(2) Planning needed when contingencies can occur because some future environment cannot be predicted with certainty.

(3) Threshold constrained planning, which arises when the occurrence of a future environment could produce catastrophic results.

He says further : "Planning is understood by executives only in the most general terms, and discussion about planning produces, at best, a vague communion. When a group of managers are pressed to be specific, their confusion about the world emerges. . . Any conscientious review of the literature of planning models would indicate that what management needs has little resemblance to what has been delivered by management scientists. The difficulty of developing adequate planning models becomes more significant as the urgency of using planning methodology increases in the upper managerial levels.

In common usage, a plan is a scheme or a method of action. Planning, then, is selecting a particular set of feasible decisions from among a number of alternative sets. . . Consequently, decision-making authority is an essential ingredient of the planning function."

S. Kirkby Warren[6] suggests that : "Corporate planning is not a process of making tomorrow's decisions today, but rather a process directed towards making today's decisions with tomorrow in mind, and so that future decisions may be made rapidly, economically and with as little disruption to the business as possible."

To Russel L. Ackoff[7] "planning is clearly a decision-making process, but equally clearly not

all decision-making is planning. Not so clear, however, are the characteristics that make it a special kind of decision-making. It is special in three ways :

(1) Planning is . . . anticipatory decision-making;

(2) Planning is a system of decisions.

(3) Planning is a process towards inducing one or more future states which are desired and which are not expected to occur unless something is done."

In offering his simple definition on planning as "a process of deciding in advance what is to be done, when it is to be done, how it is to be done, and who is to do it", George A. Steiner[8] in his book, "Top Management Planning", draws the reader's attention to the fact that a major problem in coming to grips with business planning is semantic. He states that there is a growing recognition of this fact and looks carefully at definitions of elements of the planning process. He says that it is impossible to seek any final definition that can be accepted by all. He tries, rather, to clarify the basic meanings so as to give the student a deeper understanding of the fundamental structure and process of the planning process. He suggests that comprehensive business planning must be considered from four points of view, each and all of which are necessary to a complete understanding of its nature. They are :

(1) The basic generic nature of planning. Fundamentally, all planning is concerned with

the future, and this can mean, for instance, that planning deals with the futurity of present decisions; planning, then, inherently involves assessing the future and making provision for it. The essence of planning is to see opportunities and threats in the future, and respectively, exploit or combat them as the case may be.

(2) The process of planning. Planning begins with objectives; planning defines strategies, policies and detailed plans to achieve them; this establishes an organisation to implement decisions and includes a review of performance and feedback to introduce a new planning cycle. Planning must be, therefore, a continuous process because changes in the business environment are continuous.

(3) The philosophy of planning. It is not a philosophy in the literal sense of that word but more an attitude, a way of life. The first requirement towards adequate planning is the establishment of a planning climate.

(4) The structure of planning. Comprehensive business planning is reflected in a structure of plans. It includes a reasonably complete and uniform set of plans for the entire business, covering an extended period of time. The further out in time, the less detail is appropriate, and the looser are the relationships among the parts of the planning programme. In developing current operational plans, tighter relationships are possible and desirable.

> Viewed in another way, comprehensive business planning is composed of structural blocks of plans. The three principal ones are : (1) strategic plans, (2) medium-range programmes, and (3) short-range detailed plans and budgets. All these plans are obviously interrelated.

It may be interesting and useful to compare these definitions with that of Neil W. Chamberlain[9], who describes planning as "systematic management of assets". This definition has the merit of brevity, but the word "systematic" does not carry us far beyond the word "planning" itself.

All the above-mentioned definitions are essentially extensions of Henry Fayol's definition, "to assess the future and make provision for it", and of the plan of action, "the result envisaged, the line of action to be followed, and methods to be used", which was formulated more than 50 years ago.[10]

Most of these definitions include references to several key-elements as part of the definition of planning :

(1) Planning is a discipline or process of its own.

(2) Planning implies a specific schedule.

(3) Planning involves coordination.

(4) Planning develops specific objectives.

(5) Planning outlines the means to be used to attain these objectives.

In summary they all say that planning is a process that involves making and evaluating each of a set of interrelated decisions before action is required, in a situation in which it is believed that, unless action is taken, a desired future state is not likely to occur, and that, if appropriate action is taken, the likelihood of a favourable outcome can be increased.

Obviously, many more definitions could be cited, and names like R.N. Anthony, D.W. Ewing, B.E. Goetz, L. Preston Breton, D.M. Henry and L. Urwick should not be omitted from such a list. All of these definitions are useful because they offer the essence of planning in a few words. All of them describe planning as an intellectual process, a mental task requiring reflective thinking, imagination and foresight. The majority of these definitions suggest that planning is a decision-making process, but there are some who express the conviction that planning is not merely a decision-making process. The question arises, then, of where the line is to be drawn. How are we to distinguish planning from decision-making, since both relate to the future? Before answering these questions, some other important features of planning must be mentioned.

7.2 The Time Dimension in Planning

The lengthening time-span of business resource commitments is one of the more important features of today's society. Two different types of future planning activity must be discerned :

(1) Long-range projections which become premises in the planning process; and

(2) Actual plans laid down for specific periods of time.

The question of what is the proper period for planning is not easy to answer. The broad criterion is well expressed by Koontz and O'Donnell[4]
". . . since planning and the forecasting that underlies it are costly, a company should probably not plan for a longer period than is economically justifiable; yet it is risky to plan for a shorter period. The right planning period seems to be determined by the commitment principle. Planning should encompass the period of time necessary to foresee the fulfilment of commitment involved in a decision."

7.3 Various Kinds and Levels of Planning

The literature abounds in suggestions on how planning could be, or is to be, classified. One classification suggests the following categories or levels of planning.[11]

The first level is called 'overall, long-range planning' or 'general planning' and its result is a 'master plan' for the firm as a whole. It is an integration of all types of planning levels described below, and it relates the firm to its environment over a specified period of time. By master planning, a firm solves its present internal and external problems, and attempts to prevent both kinds of problems in the future.

The next level of planning is called 'functional planning', and represents the planning of major functions as applied to functional objectives. It is a major activity which the firm carries out continuously, (i.e. physical, organisational and financial planning).

'Process planning' is the next level, and this is thought of as operations planning (manufacturing methods, process methods). Physical distribution of goods may also be covered by this type of planning.

'Organisational planning' represents the next level of planning, and deals with the authority-responsibility relationship, with the establishment of communication networks, and development of people's abilities and skills.

The primary objective of the last level of planning, called 'physical planning', is concerned with spatial arrangements of objects and includes plant location, plant layouts planning, office planning and so on. The second classification could be summarised under the following headings[12] :

(1) Comprehensive or overall company planning :

  (a) overall strategic planning including development of overall planning premises, objectives, strategies and policies;
  (b) overall implementation planning, including the coordination and summary of the individual operating and staff plans required to develop overall plans and

budgets for the firm.

(2) Specific operating and staff implementation planning, including the development of detailed plans, as well as derivative policies, procedures and rules in all operating and staff areas within the firm, such as :

(a) finance;
(b) marketing;
(c) manufacturing;
(d) research and development;
(e) others.

Steiner[8] has proposed the following classification of plans :

(1) Strategic plans;

(2) Medium-range programmes; and

(3) Short-range detailed plans and budgets

which have already been mentioned and described.

7.4 Definition of a Plan

Planning may be defined as a process which leads to an entity called "the plan". A plan is, then, nothing more than an ordered sequence of events (or activities) to be undertaken to achieve a specified objective. It describes a course of action and provides answers to the following questions: what? when? who? where? and how?, and represents projected answers to these questions within the context of an anticipated environment in order to accomplish a specific set of objectives.

The major phases of the planning process can then

be described as follows :

(1) Interpretation of the external environment in which the firm will be operating during the planning period;

(2) Establishing objectives and goals for the firm;

(3) Analysing the capabilities and availability of resources which the firm has at its disposal;

(4) Developing the specific programmes to be undertaken; and

(5) Evaluating the projected performance of the enterprise.

Such plans, which we have qualified as strategic, are prepared on the basis of estimates - forecasts of the future relationships between a company and the economic, social and physical environment in which it operates. Such forecasts are of a great value to management in determining sales goals, in planning inventories, purchases and production and capital expenditures for periods which may be from one to twenty years.

Different types of economic forecasting can be utilised, and they vary from naive assumptions to sophisticated methods and models of the GNP. The latter kind of prediction is mostly based on the simple formula : $G = E \times H \times P$ (where G = gross national product; E = average number of persons employed during the period; H = average hours worked per employee; P = output per man-hour ((productivity))).

The basic assumptions underlying the forecast typically include the assessment of the current state of international tensions, the state of scientific and technological knowledge and know-how, actions taken by the government to control great fluctuations affecting the economy, such as inflation or depression, and the rate of rises in prices. These projections must, obviously, be related to specific industries and geographical areas.

The determination of corporate objectives is the second phase. Objectives have three main purposes :

(1) Alternative courses of action are ranked by means of objectives;

(2) Corporate performance is measured by them; and

(3) They provide operational consistency within the firm.

Obviously, there are many forms which the objectives and goals of a company may take but many of them are derivatives of an explicit or implicit maximisation aim. Various recent surveys indicate that most large firms in the United States of America aim to maximise sales volumes rather than profits, and as long as profits remain at a satisfactory level this practice will probably continue[12].

However, changes in the material aspects and the value systems of society as a whole are also reflected in the changes, in the nature and aims of organisations, social, governmental and commercial.

Peter F. Drucker has a different view of objectives. In his 1958 paper on "Business Objectives and Survival Needs"[13] he has postulated company survival as the sole legitimate objective. The argument against his viewpoint is quite simple. Unless a firm makes profits and in amounts satisfying all participants, it could not survive for very long. A firm does not operate for the sake of survival only, but survives because it does something else - it makes profits.

Objectives, as well as forecasts and plans themselves, can be classified according to three dimensions :

(1) The time dimension - e.g. three months, five years, twenty years, etc.;

(2) The organisational level - firm, division, department;

(3) The function - marketing, production, finance, research, development, purchasing, personnel, etc.

Formulation of objectives involves, obviously, managerial value systems, and the differences resulting from them must be resolved to achieve rational decisions. The literature is less clear on this aspect. There are trade-offs to be made between the possible dimensions of corporate objectives and the typical choices offered by the literature are as follows :

- short- and long-term profits
- profit and growth in the current product markets or increased flexibility
- growth or independence
- growth or current dividends.

The actual choice will often be based on the subjective values of the decision-maker. Yardsticks described vary from return-on-investment to price/earnings ratios.

The remaining three steps - (a) the assessment and appraisal of objectives, (b) deciding upon means and actions for the achievement of these objectives, and (c) the comparison of planned and actual performances - are described as varying from company to company, depending upon such factors as kind of activity, size and technological and organisational complexity, etc.

7.5 Outline of 'Five-Year Business Plan'

An outline of a comprehensive plan, typical of American corporations surveyed by Henry[11], is given below :

Section	Topic
I	Business Results Summary
	Operations
	Business Indices
	Marketing
	Products
	Cost & Productivity
	Personnel
	Product Line Performance
II	Business Environment
III	Division Guidelines
IV	Most Important Problems & Opportunities
V	Business Strategy
VI	Major Business Plans & Programmes
VII	Business Results
Appendix I	Product Line Analyses & Plans
Appendix II	Cost Analyses & Plans

Some students of planning, like Ralph C. Davis (in his "The Fundamentals of Top Management") and Preston L. Breton and Dale A. Henning ("Planning Theory"), suggest that a plan may be described in terms of characteristics of the plan itself and considerations involved in its formulation. Such a list is reproduced below :

(1) Scope
(2) Complexity
(3) Depth
(4) Organisational level or preparation
(5) Organisational level at which the plan is to apply
(6) Environment in which plan is made
(7) Environment in which plan will operate
(8) Resources (men, money, materials, time) involved in plan
(9) Forward time or projection into the future
(10) Timing of plan (when it will start)
(11) Decision points
(12) Certainty, risk and uncertainty involved in the premises
(13) Balance
(14) Integration
(15) Value of the plan
(16) Cost of the planning process
(17) Authorship
(18) Acceptance
(19) Ease of implementation
(20) Ease of control
(21) Measurement features.

The size of such a comprehensive plan obviously varies according to the level of management, the overall plan being the shortest and least detailed.

7.6 Policies, Procedures and Rules

As defined above, a plan is directed towards the attainment of specific objectives over a specific period of time. To be correctly implemented, it needs guidelines delimiting actions but not specifying time. Such guidelines are called policies. Policy, therefore, establishes guidelines, written or implied, and limits for discretionary actions by individuals responsible for implementing overall plans.

Procedure, on the other hand, is a prescription which gives detailed instruction on how to carry out a series of steps to accomplish a task or a goal. In this sense, they are subplans to larger plans. They are usually written down. A rule is one step - an instruction of a procedure in terms of facilities, manpower and time available. It is, therefore, a subplan of a procedure.

7.7 Strategy and Tactics

The above terms are in common use in planning and require some clarification. The term 'strategy' (meaning the art of the general), taken over from the military science, can be understood as military science understands it, as the overriding long-term plan. Semantic interpretations vary considerably in the field, and different authors give slightly different interpretations of this term, ranging from 'actions needed to attain objectives' to 'rules of games'.

For our purpose, strategy means what military

strategists say it does, and includes, therefore, the elements of behaviour under conflict as well as a set of interrelated decisions; it is long-range and yet it must remain flexible. New information is reviewed as it is obtained and 'strategy' can, therefore, be defined also as 'a sequential decision-making process'. It can also be defined more simply as a broad allocation of resources.

Tactics are detailed actions supporting the strategy and could be defined, also, as a detailed allocation of resources in order to attain the objective.

7.8 Top Management in Planning

All scholars and practitioners emphasise that planning will fail in the absence of the chief executive's support, participation and guidance. This chief executive's responsibility cannot be delegated to the planning staff. It is also his responsibility to see that a proper organisation for planning is created, that all managers understand its function and that planning is carriedout as a continuous function. All managers involved in planning must realise that planning means change, and that interactions of plans and people must be understood and considered.

7.9 Duties of Corporate Planners

Henry's study[11] also indicates that duties of a corporate planning director can vary considerably. He is basically responsible for :

(1) Administering all planning activities;

(2) Specifying overall company strategic directions including company objectives;

(3) Ensuring the quality of individual operating plans;

(4) Coordinating and balancing individual plans within the overall corporate plan;

(5) Performing planning activities not covered by individual operating units, such as diversification, mergers and acquisitions.

7.10 Conceptual and Operational Models of Corporate Planning

The fundamental concept of comprehensive corporate planning (long-range planning) of all examined planning models as found in the contemporary literature on planning, is fairly simple. Essentially, most of them include four major elements :

(1) Forecasts - business prophecies - projections of things to come;

(2) Strategic plans, essentially loose, written or unwritten, sets of objectives, strategy(ies) and policies with a timespan of five to fifteen years and more in some cases;

(3) A set of detailed plans covering major functional areas with a time span of two to three years;

(4) One-year plans and budgets.

An attempt to compare all surveyed concepts would be a tedious and unrewarding task because fundamentally they all include the four major elements that have been described above. Obviously, the emphasis varies from one concept to the other, and to offer an idea

of these different approaches to the elements mentioned above, three most important conceptual models that have influenced contemporary planning practice will be examined in some detail.

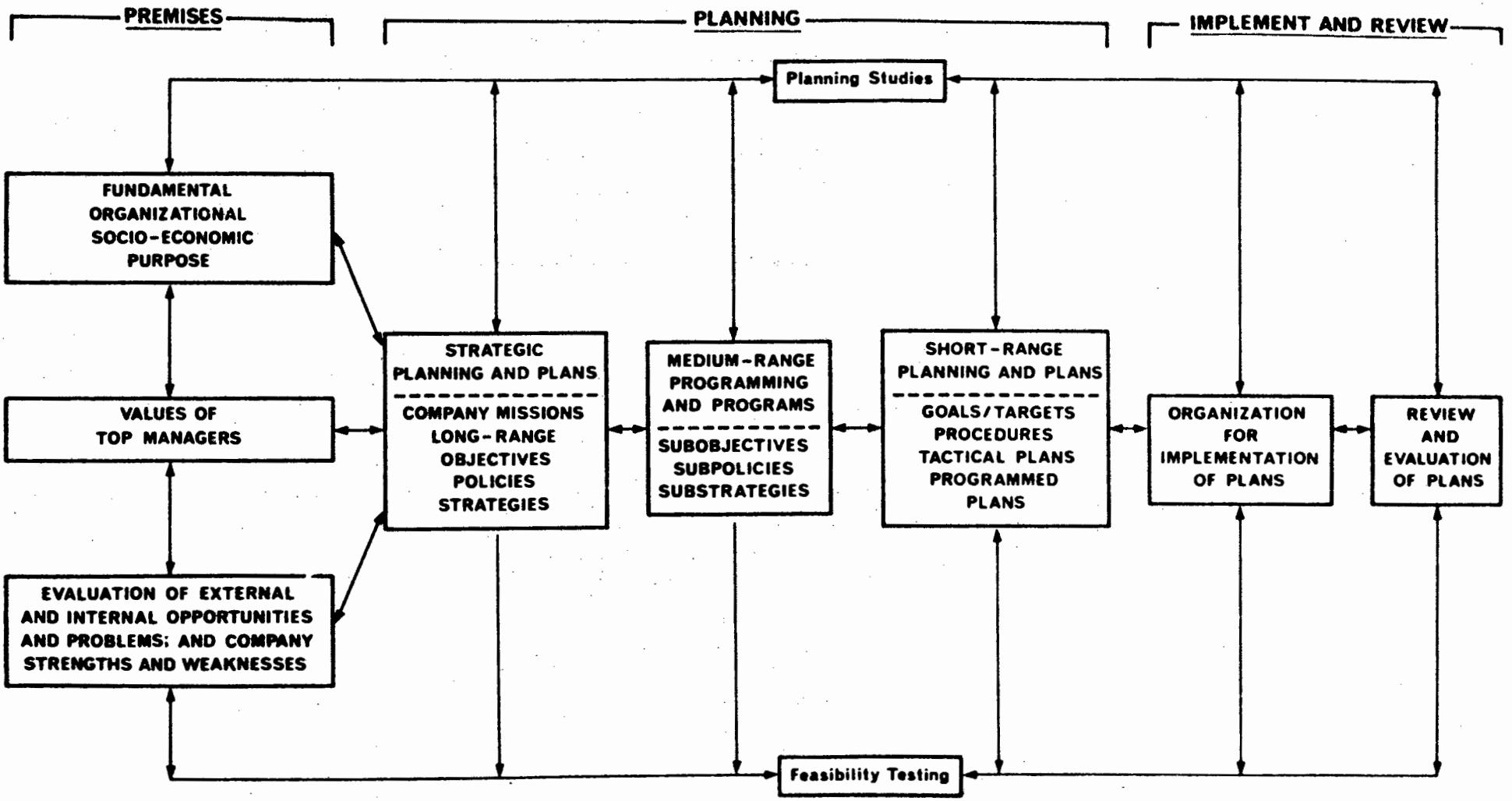
Figure 9 sets forth Steiner's conceptual model of the structure and process of an effective and efficient planning programme.(8) It was constructed by Steiner after he had analysed a score of planning systems.

To the left of the chart are three underlying foundations of any company planning effort : fundamental, organisational, socio-economic purposes; values of top management; and studies of the environment. Each has a profound and unique contribution to make in planning. The socio-economic purposes refer to society's expectations of its business institutions if they are to survive. Values, ideas and philosophies held by managers are the second fundamental set of foundations for planning. These individual values, codes of ethics and moral standards are the premises of planning.

A primary purpose of long-range planning (comprehensive corporate planning) is to discover future opportunities and to make plans to exploit them. At the same time, obstructions must be detected and removed from the road ahead. Plans can be effective only if they exploit opportunities and remove obstacles on the basis of an objective understanding of the strengths and weaknesses of the company.

Strategic planning is, then, the process of

Figure 9 : **Structure and Process of Business Planning**



Similar to a diagram in "The Critical Role of Top Management in Long-Range Planning,"

determining the major objectives of an organisation and of formulating the strategies and policies that will govern the acquisition, use and disposition of resources to achieve those objectives. Objectives include missions or purposes if they have not been determined previously, and the specific objectives sought by the firm. Although the strategic objectives are usually long-range, they can be short-term too. Policies are broad guides to action, and strategies are the means to deploy broadly important resources. The basic mission or purpose of a firm is the line of business which it wishes to pursue.

Strategic plans are not always written; very frequently they are found, as Steiner says, in the head of the chief executive who communicates them when he sees fit to do so. Medium-range programming is a process in which detailed, coordinated and comprehensive plans are made for selected functions of a business to deploy resources to reach objectives by following strategies and policies laid down in the strategic planning process. Short-term budgets and detailed functional plans include short-range targets for the salesmen, budgets for the purchases of material, short-term advertising plans, inventory replenishment and employment schedules.

In his model, Steiner uses the term 'planning studies' to mean studies made especially for the planning process - analyses of future markets and so forth. Such studies are usually of high significance for the planning process.

If plans are to be carried out, suitable organisational

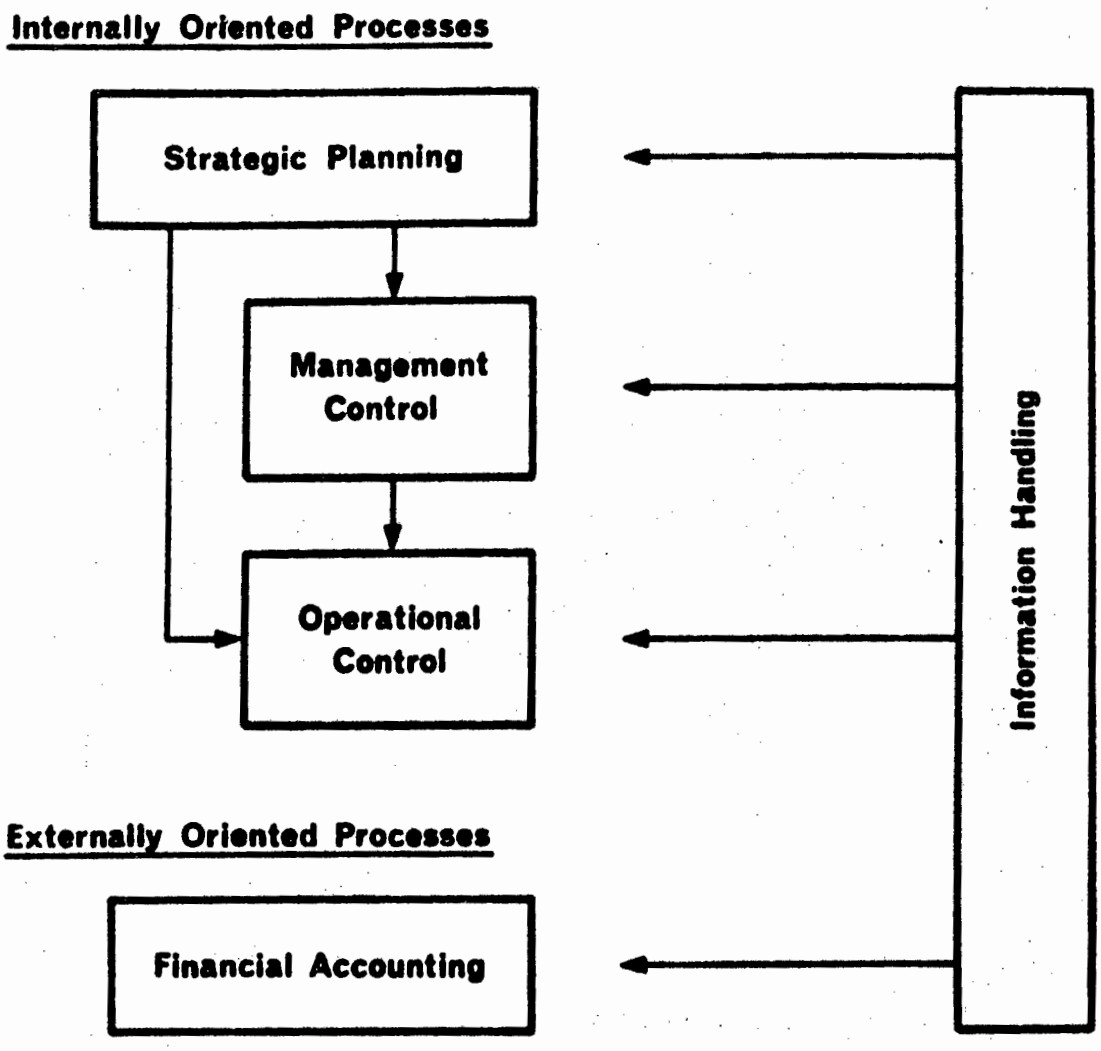
arrangements must be made. An effective planning programme needs continuous surveillance as well as periodic review to assure that plans are carried out, and that new plans are devised as required. Conceptually, the entire comprehensive process should be recycled every year.

To comprehend strategic planning, it is most important to understand the differences between strategic and tactical planning. At one end of the spectrum is strategic planning as defined, at the other end is tactical planning or detailed deployment of resources to achieve strategic plans. However, the lines of demarcation between strategic and tactical planning are blurred, both conceptually and operationally. Strategy gives rise to tactics, and tactics may be considered substrategy, which in turn employs tactics for execution. What is one manager's strategy is another's tactics and vice-versa.

Figure 10 illustrates a conceptual planning model as suggested by Robert N. Anthony[14]. This author distinguishes, within strategic planning, two controlling aspects : management control and operational control. Strategic planning is otherwise defined as in Steiner's model. Management control within this framework is then explained by Anthony as 'the process by which managers assure that resources are obtained and used effectively and efficiently in the accomplishment of the organisation's objectives'. Operational control is to Anthony 'the process of assuring that specific tasks are carried out effectively and efficiently'. The main merit of this model is its emphasis on the importance of the way in which the flow of information is handled.

Figure 10 :

Planning and Control Processes in Organization



Source: Anthony, Robert N., *Planning and Control Systems: A Framework for Analysis* (Boston: Harvard Business School, Division of Research, 1965), p. 22.

Figure 11 shows a conceptual planning model known as the SRI model[15]. Fundamentally, the aggregations as shown on this chart are similar to Steiner's and Anthony's models. The SRI strategic plan leads to corporate development plans and an operation plan. These, in turn, lead to further detailed plans.

A conceptual model of a structure of short-range operating plans is illustrated in Figure 12 and does not require any comment.[16]

Even a superficial analysis of these examples of conceptual planning models reveals the fact that the conceptual steps in planning are essentially those basic problem-solving procedures which must be followed in decision-making. The simplest model includes the following elementary steps :

(1) Determine and define the problem.

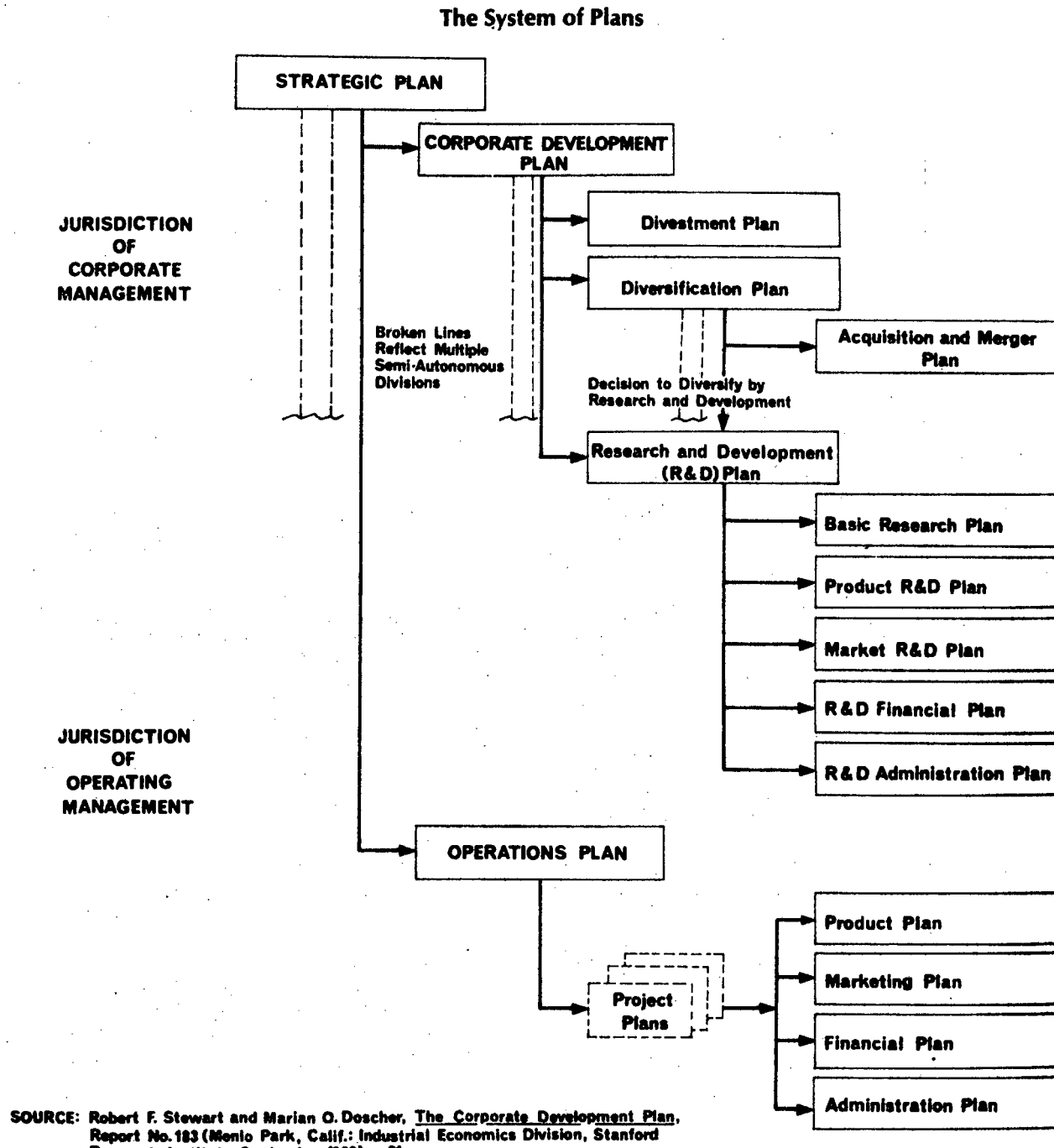
(2) Collect all pertinent factors available to solve the problem.

(3) Decide which actions to take to solve the problem.

7.11 Gaps and Shortcomings in Present Planning Concepts and Methodologies

For elaborating a plan, a set of characteristics must then be considered, as suggested in the preceding paragraphs, because without these characteristics a plan cannot be defined. If these characteristics could be spelled out in detail they would be not only of theoretical but

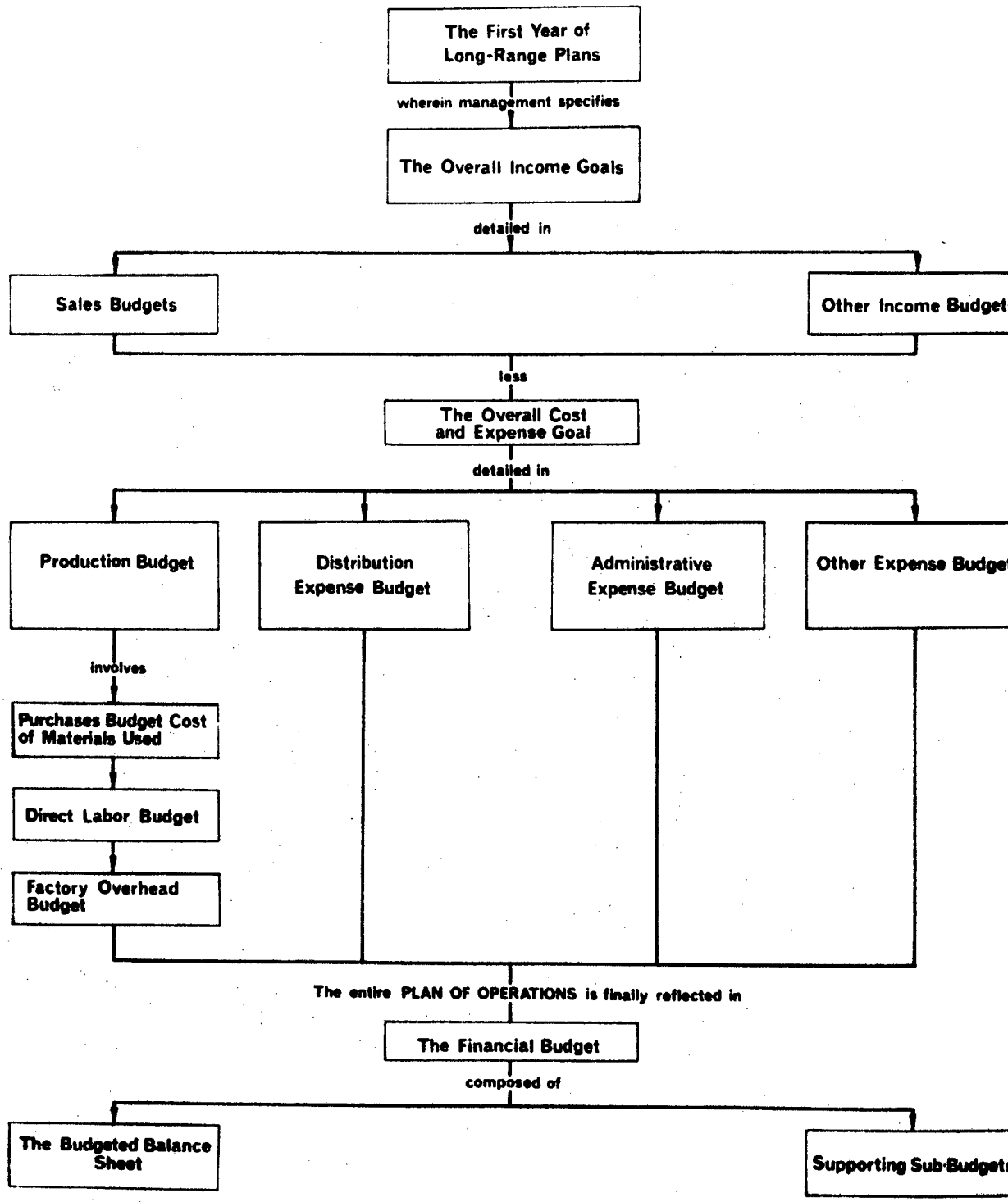
Figure 11 :



SOURCE: Robert F. Stewart and Marian O. Doscher, The Corporate Development Plan, Report No. 183 (Menlo Park, Calif.: Industrial Economics Division, Stanford Research Institute, September 1963), p. 21.

Figure 12 :

A Simplified Development and Structure of Short-Range Operating Plans



Source: Glenn A. Welsch, *Budgeting Profit Planning and Control*, Second Edition © 1964. Prentice-Hall, Inc., Englewood Cliffs, New Jersey.

also of practical value because they could be used as a checklist to ensure that the planner did not omit some important aspects during the planning process, be they qualitative or quantitative.

Each element should be defined as clearly and fully as possible, as this would satisfy the requirements of scientific method which insists on initial clear definition of terms to be used and on classifying all of the knowledge concerning these terms.

Yet, in spite of a voluminous literature on planning, we could trace no serious attempt to establish a foundation of clear terminology and understanding of communication and scientific enquiry. We have found an impressive structure of formats and procedures which are not properly used, and which should be tested to determine their suitability for practical application, not only as far as the availability of data but also their variability and sensitivity to data are concerned. They should also be tested for possible alternative mathematical formulation regarding the accuracy with which they reflect reality.

We are not even able to answer the simple question of how to tell if the proposed plan is a good plan. Models are constructed for well-structured problems and the area of ill-structured problems remains neglected. Effective management tools, like the PERT-type project control systems, remain unintegrated into business planning systems. The present systems are quite effective in resource scheduling but very poor in activity scheduling. An integrated planning system combining financial

and physical resource scheduling with performance scheduling is long overdue.

Decision analysis and programming, the two planning phases mentioned above, remain separate and so some key decisions which may be critically important to the firm's future may remain hidden in programmes or budgets. Thus consequences of different decisions cannot be explored by top management.

The literature surveyed also shows a strong interest by planners in computer simulation of business, but most models in this area come from theoreticians rather than business planners, and such models lack realism.

The contributions from the social sciences depend on how theoretical studies of the firm's objectives are backed by empirical studies of the goal structure of organisations. Too much emphasis has been placed on purely social phenomena, and the economics of physical resource conversion and of communications systems has been excluded. On the other hand, too little is known of how organisations respond to changes induced by planning. Are some organisations more responsive than others? What kind of management determines the organisational acceptance and commitment of and to plans?

None of the texts answers to what extent successful planning is influenced by the planner's understanding of the manufacturing process and of the information handling. Very little could be discovered, too, about the extent of knowledge necessary to a planner or how firms react to his successful planning. An

understanding of the firm's behaviour under different sets of circumstances is surely necessary, yet this area of knowledge is grossly neglected too. How do management attitudes affect the firm's behaviour under different conditions? Very little has been written on this aspect.

Contradictory papers could be found on what the use of the computer is doing to internal management structure, yet this kind of knowledge is surely critically important? No information was found on how external trends affect the firm's behaviour even though this could be of some value to the planning methodology.

Very little information is available on the factors contributing to success and failure of firms within the same industry. Information is also lacking on how different external conditions and different product technologies affect firms belonging to different industries. In addition, studies are needed on the transferability of managerial skills, inclusive of planning, to different cultural and socio-economic environments.

Modern firms operate in highly dynamic environments, but most current theories and models are static. Information is needed on how these environmental dynamics affect the theory of the firm. Very little information is also available on the search for opportunities, threats and other relevant information, and on the manner in which this information is screened and used by the firm.

Our search was also in vain as far as information

on the total planning control system is concerned. As performance scheduling must become integrated with resource scheduling, and as behavioural elements must be introduced into models, more information is needed on this aspect.

In spite of the advances made in developing a science of planning, a more precise definition of the role of planning departments and executives is needed, and these departments and executives need to be given greater control over all major planning activities. Besides this urgent task, more and better trained executives are needed as more companies set up and maintain planning departments.

Corporate managers do not fully understand how to carry out specific planning steps, in spite of the fact that much is already known about planning. Very often they are unwilling to change existing organisational structures and give the newly-created planning unit the tools it needs to do a good job. This results in the planner's task being carried out in a vacuum, and so operating realities are often kept away from planners. Bold experiments with planning organisations, administration and use of new techniques are thus essential requirements for business planning to become a truly useful management science.

Finally, as already suggested, if all conceptual models that one finds offered at present cannot be verified through planning experimentation, they are valueless in themselves, and all planning efforts leading to such models remain barren. The conceptual work must be matched with practice.

All the above aspects will be dealt with again within the framework of broader issues in Section 10 dealing with the present status of the planning theory.

8. THE SYSTEMS APPROACH TO PLANNING

8.1 The Systems Concept

As shown above in our incomplete findings, an integrated approach to planning is necessary. Modern organisations are faced with new managerial difficulties caused by :

(a) more uncertainties in their environment;
(b) more complex structures; and
(c) more performance complexity.

These conditions will become increasingly prevalent. New environmental uncertainties are being brought about by rapid, often unpredictable, changes in technology, social structure, human aspirations, government regulations and policies, and political power and international relations. More varied activities and a greater demand for coordination, as well as new complexities in performance, will make managerial decision-making, planning and control very difficult.

These revolutionary changes are being paralleled by equally drastic changes in the theory and practice of management. One major concept brought about by these forces in both the planning and implementation function of management is the idea of the 'systems concept'. This 'systems concept' pervades management to such an extent that the word 'system' has become a part of the vocabulary of all those concerned with management, scholars and practitioners alike. Phrases like 'systems concept', 'systems management' and 'systems analysis' are, for many people, synonymous

terms, and it will, therefore, be meaningful to categorise all aspects of systems under the general classification of the 'systems approach' as suggested by Richard A. Johnson, William T. Newell and Roger C. Vergin in their book on Operations Management[17].

In their diagram, (Figure 13 below), there is a flow from theoretical to practical application, from the conceptual to the techniques of analysis, and from science to day-to-day operations.

The entire philosophy of the systems approach places emphasis on the development of systematic ideas, on logic and thorough, regular thinking. A system is 'an organised or complex whole; an assemblage or combination of things or parts forming a complex or unitary whole'. In a unitary whole, all parts are interrelated and interdependent, and interact in their effort to attain some kind of objective. The outputs of one system are inputs of another system. Therein lies the basic concept of systems theory : the input, transformation and output model.

The systems approach is a philosophical and conceptual way of thinking, a way of establishing hierarchies of relationships, a way of associating activities with other activities so that relationships can be identified and classified appropriately.

The systems approach can also be used to design and operate organisations, as shown in Figure 14.

The utility of the concept to managing an enterprise may be viewed in terms of two elements of the manager's job :

Figure 13 : The Systems Approach

	Systems Theory	Systems Management	Systems Analysis
Viewpoint	Conceptual	Pragmatic	Problem Solving
Method	Cogitative	Synthesis	Modelling
Managerial Level	Strategic	Coordinative	Operating
Task	Association of phenomena as unitary whole	Integration of operations through design	Goal achievement and resource utilisation

Figure 14: The Systems Approach

	Systems Concept	Systems Management	Systems Analysis
Vehicle	General Theory and Principles	Application of the Theory to Man-Machine Systems	Models of Analysis
Emphasis	A Way to Think - A Philosophy	A Way to Organise Resources	A Way to Plan and Solve Problems

(1) He desires to achieve an overall effectiveness of his organisation;

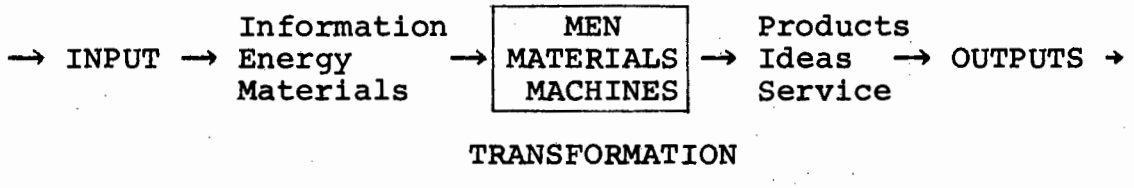
(2) He does so in an environment involving invariably conflicting organisational objectives.

This approach results from the recognition that any organisation is a system made up of segments, each of which has its departmental goals. The manager can achieve the overall company objective only by viewing the entire system and seeking, through the understanding of interrelationships, integration to enable him to pursue the company's strategic objective(s) effectively.

8.2 Systems Approach to Planning

For our purpose we shall view an organisation as a dynamic people-and-resources system operating at specific locations in space and time. Relevant information on any such system may relate to its environment, its internal structure, and its performance. The simple diagram below illustrates these relationships :

Figure 15 : People-Resources System



The systems approach to planning considers the enterprise as the integration of numerous decision-making subsystems. The primary function of corporate (long-range) planning is one of systems design which involves :

(1) The establishment of goals, objectives, policies, procedures and of the structural relationships of a systematic basis for guidance of decision-making at various organisational levels; and

(2) The provision of the flow of information to and from these planning centres.

Without planning, the system could not change its present state, and would not be able to adapt to different internal and environmental forces. The systems approach to planning requires a continual evaluation of plans, based on new informational inputs during the life cycle of the plan. Results are continuously evaluated in terms of objectives.

This approach is called, in the system's terminology, 'systems analysis'. It is in many ways similar to the scientific method. Constraints and requirements are carefully outlined, alternative methods of achieving the objectives are detailed, suboptimisation studies are carried out to select the best alternative according to preselected criteria, and a decision plan is developed which can achieve the specified objectives.

Systems analysis is problem oriented, and uses a logical process of deductive-inductive reasoning. Many questions can be asked, e.g. :

(a) How many distinguishable elements are there to this problem?

(b) What causal relationships exist among these elements?

(c) What functions need to be performed in each case?

(d) What trade-offs may be required among resources, once they are defined?

During the analysis we proceed from the deductive to the inductive when we progress from general objectives to plans and back in a cyclical closed loop fashion to refining objectives and making more detailed plans.

This process is illustrated in Figure 16. It goes through four main stages, which are called :

(1) Translation
(2) Analysis
(3) Trade-offs
(4) Synthesis.

Translation is the statement of the problem, including all the constraints which are placed on the solution, such as time, cost restrictions and organisational patterns of action. Selection criteria, such as cost/effectiveness, timing and risk, are outlined at this stage and used to evaluate the appropriateness of various trade-offs. The feedback is represented by the reiteration of the cycle until refinements have determined the final plan or solution.

The various flows such as material, energy and information, essential elements of any given system or subsystem, may be developed separately, but all three must be considered. The organisation structured around the flow of material and information

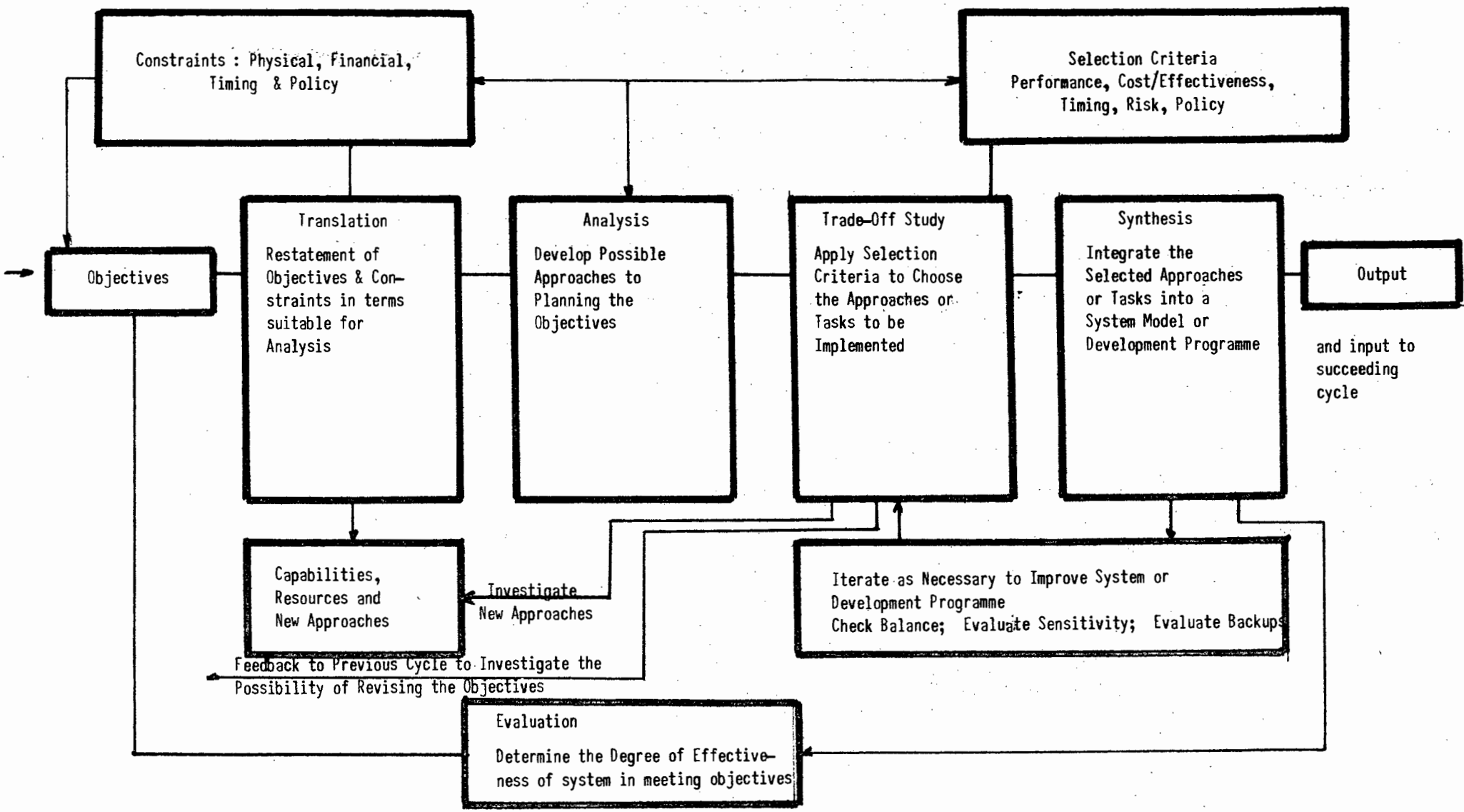


Figure 16 : A Model of Systems Analysis

Source : P.G. Thome and R.G. Willard, "The Systems Approach – A Unified Concept of Planning", General Electric Company, Missile and Space Division, 1, No.3, 1966, p.31.

between decision points, would cut across traditional, functionally specialised department boundaries.

Systems analysis has been used effectively in planning advanced systems and technologies. It is not easy to use, but if applied with the required skill and common sense it is a valuable technique for identifying advanced requirements of complex systems, to assess the impact of environmental changes on developmental plans, for identifying potential problems in the conceptual stage of a programme, and for providing accurate information on decisions made and on the reasons supporting recommended courses of action.

8.3 Techniques Applicable to Systems Approach to Management

In applying the systems approach to management problems, many techniques are helpful. We list, below, a number of them :

Stage	Techniques
Formulation of Problem	Critical Analysis
Formulation of Objectives	Accountancy techniques such as Discounted Cash Flow, Risk & Venture Analysis
Model Building	Digital & Analogue Computer Techniques, Simulation Techniques
Optimisation	Various Optimisation Techniques - Linear Programming
Control	Control Theory, Financial Control Techniques
Implementation	Computer Control, Critical Path Scheduling.

8.4 The Relationship of 'Systems Approach' to Functions

To achieve predetermined objectives, disorganised resources of men, machines and money must be converted into a useful and effective enterprise, which takes place through the integration of these unrelated resources into a total system by the management process.

This means that managers manipulate these resources in order to attain the objectives, and the activities and work of others are coordinated to this effect.

But because these functions are performed in conjunction with the operation of the system, and not as separate entities, there is a change of emphasis not found in the traditional approach. Everything has to revolve around the system's objectives, and each function is performed only as a service towards the final goal.

By way of summary we can define the systems approach in terms of four principles :

(1) It is teleological or goal-oriented with continual emphasis on objective achievement (effectiveness).

(2) It is total system-oriented, because decision criteria stress optimisation of the total system, rather than that of the subsystem when a trade-off situation exists.

(3) It is people oriented because members of the firm are given challenging assignments and they are identified with outputs (achievement is recognised and rewarded), and although work

assignments may be specific, the changing nature of systems encourages the intellectual growth and development of employees.

(4) It is responsibility-oriented, because each manager is given a specific assignment with measurable inputs and outputs.

(5) It approaches closely the desiderata of scientific inquiry, as far as planning is concerned.

Yet, in spite of all these advantages, we must not be under the impression that we have found a universal panacea to problems in planning.

Systems analysis may be used in two ways : firstly, a better conceptual understanding of the planning problems can be reached, and then a decision can be taken on what should be done. Secondly, through systems analysis, the ends-means relationships (and objectives) can be clarified and thus the judgement of the decision-maker (the planner) can be sharpened.

But clarity in ends-means relationships and in objectives may (and does) make for increased disagreement within the organisation. The planner, having been made more clearly aware of the uncertainties and the links of the objectives, may feel less confident that he has made the right decision than he would have been without the help of the systems analysis. So, his sense of personal responsibility can be heightened, and he could become more careful to express his decisions in clear terms. He could express his thinking in terms of technically solving the problem rather than in terms of clear

trade-offs among objectives. This is the most severe limitation of the new approach, but there are obviously other limitations which could be summarised as follows :

Systems analysis is basically the current state of the art aiming at a possibly more efficient and effective allocation of the strategic planning function. However, this optimisation effort must be adapted to cognitive limitations because of complexity and uncertainty.

It is only one of many approaches available to the planner, and only one of the many ways of looking at a decision among other decisions competing for his attention.

Planners cannot be objective in their organisational decision-making because of their difference in their value systems, the conception of the structures underlying decisions and the criteria they apply.

The introduction of systems analysis into the planning process has definitely reduced the sense of control planners feel they have about their decisions. The enthusiasm for the creation of new alternatives is thus lessened.

Systems analysis and organisation theory must be examined more closely in order to make systems analysis more useful in the decision process and to develop new organisational arrangements facilitating its use.

9. PLANNING, PROBLEM-SOLVING AND DECISION-MAKING PROCESSES

9.1 Differences Between Problem-Solving and Planning Decisions

In our preceding analyses we have twice been led to conclude that planning steps are essentially basic problem-solving procedures. Some planning frameworks studied suggest, however, that planning is not merely a decision-making process. What, then, is the delineating factor or factors which would permit us to distinguish planning from decision-making?

Peter Drucker says in his book, "The Practice of Management", "Whatever a manager does he does through making decisions . . . but a good deal . . . tends to centre on problem solving that is in giving answers. And this is a wrong focus. Indeed, the most common source of mistakes in management decisions is the emphasis on finding the right answers rather than the right question."(1) He distinguishes between the tactical (routine) and strategic decisions. He does not deny the importance of the former group of decisions, but emphasises the over-riding importance of the latter category.

Indeed, the decisions that matter in planning are strategic, involving either finding out facts about situations, and about factors influencing the changes as well as finding out what resources are or what they should be. In strategic decisions it is most important to ask the right question; the right question must not only be asked, but the right course of action must also be decided upon. Drucker further points out that the most crucial moment in the decision-making process is to make sure

that decisions taken in various sectors of the business and at various management levels, are compatible with each other and in harmony with the firm's objective(s).

What, then, is the relationship between business decision-making and the business planning process? Both processes are closely related, as can be seen from the following comparison[12] :

Business Problem-Solving, Decision-Making Process	Business Planning Process
(1) Defining the problem - symptomatic diagnosis to find critical factors - determination of conditions for problem-solving	Define the purpose of the planning effort
(2) Analysing the problem - finding the right question - getting right facts - time-span of commitment to a course of action - impact of decisions on other areas and functions - the number of qualitative considerations - uniqueness or periodicity of decision	Develop planning premises
(3) Developing alternative solutions - imagination & creativity tools - scientific method application	Develop possible courses of action in the area of company objectives
(4) Deciding upon solution using four criteria - the risk - economy of effort - timing - limitation of resources	Evaluate these alternative objectives

Business Problem-Solving, Decision-Making Process	Business Planning Process
(5) Converting the decision into effective action	Select the most promising objectives and develop plans for carrying them out. (Steps 3, 4 and 5 are repeated in developing corporate philosophy, overall policy, implementation plans, procedures, rules, etc.)

From this simple juxtaposition we can see that decisions can be made without doing any planning; planning, however, requires a series of decisions, and to be successful depends on good decision-making. Planning could be considered, as R.L. Ackoff[7] suggests, as one kind of decision-making, called 'anticipatory decision-making'.

The first attempt to correct these shortcomings can be ascribed to David Ewing, in 1958, in his publication "Long-Range Planning for Management", in which he assembled in this work all major articles on planning which had appeared at that time.

During the 1960's the literature on planning grew rapidly. Such works, as for example, "Planning Theory" by Preston L. Breton and Dale Henning (1961), covered topics like the importance of planning elements, the dimensions of a good plan, the role of personnel in planning. "The Corporate Planning Process" by Meville Branch (1962) studied all activities involved in planning. These two works attempted to build a superstructure for a theory of planning.

Brian Scott's publication "Long-Range Planning in American Industry" (1965)represents an attempt to offer a comprehensive outline of strategic planning theory. Management decision-making at the top level was explored by H. I. Ansoff in his work "Corporate Strategy" (1965). He discusses the nature and kinds of strategy &the role of objectives and strategies as foundations for plans. It is definitely an important contribution towards the formulation of a planning theory, though too abstract and complex for practical application. C. T. Hardwick and B. F. Landuyt treated the same key areas of planning in their publication "Administrative Strategy and Decision-Making" (1966).

Other authors such as Bruce Payne in his "Planning for Company Growth" (1963). explored planning at the operating level. This work offers practical

guidelines for effective planning to business managers.

Some scholars, specialising in planning, have undertaken studies of planning practices among large companies in the U.S.A. Two works should be cited in this field : "The Long-Range Planning Policies and Practices : Selected Companies Operating in Texas" (1963) by William T. Newell and "Multinational Corporate Planning" (1966) by George Steiner and Warren Cannon. Such studies are useful and interesting but they seldom reveal the difficulties and failures of such companies in their attempt to introduce formal corporate planning.

E. Kirkby Warren, in his "Long-Range Planning : The Executive Viewpoint" (1966), exposes such cases of failures and illustrates the kinds of difficulties encountered in planning by companies, showing how difficult it is to do planning effectively. Books like "The Practice of Planning" (1968) and "The Human Side of Planning" by David Ewing, present specific, practical guidelines for corporate planning efforts. There are many other similar books which could be mentioned but they cannot, in spite of their usefulness, be designed as mature, comprehensive handbooks on planning.

In the late 1960's, the work "Business Strategy and Policy" (1968) by Thomas Cannon analysed planning practices at major American firms. He identified corporate strategic planning with overall marketing planning. The most complete study of corporate planning appeared in 1969, published by George Steiner under the title of "Top Management

Planning", which covers all facets of business planning, both strategic and implementation planning.

A good supplementary planning study is a stimulating introduction to corporate planning by Russel L. Ackoff titled "A Concept of Corporate Planning" (1970). Policy-making has also attracted the attention of scholars and several books are now available on this topic, such as "Business Policies and Central Management" (1965) by William Newman and James Logan, which deals with policy development as one major aspect of strategic planning. The most comprehensive study of policies which has appeared to date is the two-volume book "Management Policies" (1966) by Valliant Higginson. While its main theme is how companies develop policies,the overall corporate planning framework within which these policies are developed is also analysed. In this connection, collections of readings such as "Business Policy : Selected Readings and Editorial Commentaries" (1967) by Alfred and Walter Gross, Edmund Gray's "Readings in Business Policies" (1969) and "Readings in Business Planning and Policy Formulation" (1972) by Robert J. Mockler should also be mentioned.

Other areas related to planning have also been extensively studied. Topics such as environmental factors as they affect planning, control, changes in organisational patterns brought about by strategic planning, and so forth have been explored and written about. There is a plethora of works and articles in this field, which indicates the ever-expanding interest in planning studies.

This short overview covers the major American efforts. However, the same enthusiasm and interest in planning as one of the most important management functions, can be noted in Europe. In 1968 the Society for Long-Range Planning in Great Britain introduced a quarterly journal "Long-Range Planning", an organ for communicating planning experiences of both the United States and other countries' firms. At many major universities new research programmes on planning have been initiated, designed to develop new insights and obtain new knowledge in the field of planning.

The number of books and articles on planning and business policy appearing in France, Germany, Great Britain, Italy and other countries grows steadily every year. One of the best recent publications is the "Handbook of Strategic Planning", edited by Bernard Taylor and Kewin Hawkins (1972) and based on papers presented to the University of Bradford Management Centre conferences and seminars over the period 1967-1970. Unlike most of the other published works on corporate planning, this book includes a considerable amount of experience and thought drawn from practical planning experience by British firms.

During the last few years, the emphasis has been placed on the use of computers in planning, and companies such as Shell, Mobil and others have designed computerised planning models. Such models are used to evaluate and test a great number of alternative courses of action, which has not been possible with the manual methods available up to now.

This trend is continuing at present, and it is now an established fact that advanced mathematics and operational research techniques can be applied to solve business and economic problems.

11. SUMMARY - WHAT A WELL-EDUCATED PLANNER SHOULD KNOW

11.1 Difference Between Planners and Management Scientists

Our preceding analyses have highlighted the fact that the proper scope of planning is describable in terms of interdisciplinary systems. Whilst the large body of knowledge relevant to planning lies within 'management science', other parts come from economics, organisation theory and theory of knowledge - the most important of these being economics - the study of social behaviour and of the conversion and distribution of physical resources within a closed system, the human society.

However, planners differ at present from management scientists in several important aspects :

(1) Planners are interested in models which are useful and relevant to the firm's activities, whereas management scientists are more interested, at present, in formal models.

(2) Planners participate directly in the ongoing management decision cycle, whereas management scientists work on special assignments.

(3) Planners are concerned with programming of the firm's activities and not with the manner in which the underlying decisions are arrived at. For management scientists the problem is solved when the preferred alternative is chosen.

(4) Planners are concerned with implementation of plans, with their organisational acceptance,

with the measurement of the company's actual performance against the planned performance, and with the respective feedback. Management scientists are uninterested in these matters..

11.2 Categories of Knowledge Needed by Planners

In section 5.1 we have raised the question of what kind of knowledge a planner should possess. We are now in a position to answer this question.

As far as the normative knowledge is concerned, as a minimum, a planner should possess the following knowledge :

decision theory
probability theory and statistics
linear and dynamic programming
game theory (at least to some extent) and
computer applications.

However, the time is not too far distant when every planner will need a fair understanding of all tools of management science.

With respect to descriptive knowledge, its boundaries must, per force, be very large indeed because any restriction would reflect upon the planners' ability to take action. This means that the more they know the greater their ability to cope with their dynamic ever-changing environment. Obviously, the emphasis is placed on macro- and micro-economics, organisation theory and the theory of knowledge itself.

The above specifications, therefore, represent the planner's vocational attributes which give him his professional orientation, technical competence and communications proficiency. They are reinforced by his experience in his role. There are, obviously, other dimensions which must also be considered. Knowledge per se would not alone make a planner successful, and he should also possess the following attributes :

high intelligence
unusual creativity
independence of thought
extraordinary self-discipline.

11.3 Attributes Required for Successful Planning and the Duties of Planners

The list of qualifications and requirements would not be complete without mentioning some essential behavioural characteristics such as perspective in analysis, tenacity in implementation, charismatic leadership and sensitivity in human relations which should also go into the making of successful planners.

Without them the planner would not be able to discharge successfully the following duties :

Formulation of corporate objectives and policies;

Development of action programmes;

Direction of the planning staff in activities of market research, economic and business analysis and planning for products, facilities and acquisitions;

Evaluation of market growth potential;

Coordination and integration of divisional planning activities;

Direction of and participation in a search for opportunities for business growth and developments;

Coordination of overall company marketing strategy;

Evaluation of possible mergers or acquisitions and negotiation of desired ones;

Direction of corporate handling of proposed new processes and products;

Development of priorities for major new products and projects, recommendation of special research projects to the chief officer and auditing the progress of projects;

Provision of an information service to other executives;

Reviewal of major capital expenditures in relation to corporate objectives; and

Recommendation of short-term and long-term budgets.

The above list gives a broad idea of the wide range of duties that fall within the planning area.

As can be seen from the above discussion, effective leadership, organisation and staffing are important to successful planning, which is essentially a participative job. Operating managers must be motivated to do planning, and planning efforts must be administered. Communication, or the ability to communicate is, therefore, essential.

12. THE STATUS OF PLANNING THEORY

12.1 The Present Situation and its Requirements

The survey of the literature on planning indicates that corporate planning has become an accepted management function. Slogans such as 'planning is a great force of our times', 'in the age of planning', 'planning is a key concept of our future', testify to the ubiquity of planning and indicate that a change of attitude is taking place. Financial support of planning and related professions is increasing, and the quality of professionals engaged in planning is steadily improving.

The field has become almost worldwide, for reasons affecting our very survival, and yet, as our analysis has shown, corporate planning enjoys its popular favour without the benefit either of a supporting framework of ideas intrinsic to it, or a theory which it could call its own.

Despite the growing interest in planning, and notwithstanding the resounding titles of some of the many books on this subject, a general theory of planning has yet to be developed. The current state of planning could be described only as a 'predisciplinary stage'.

The conceptual suggestions found during the survey on planning range from descriptions of experiences to elegant but inoperable propositions. All these frameworks must, perforce, be vaguely defined because they are not backed by an established theory.

However, despite this lack, our survey shows clearly that a specific sequence of steps does occur, obviously in various forms, throughout the planning process.

(1) The present situation is evaluated.

(2) The alternative objectives are identified.

(3) These alternatives are evaluated and the one (or a combination of them) is selected which seems most desirable.

(4) Alternative means are identified for achieving these objectives.

(5) These means are evaluated and the one (or a combination of them) which seems most desirable is selected.

(6) The chosen means are implemented to pursue and attain the selected objective(s).

(7) The whole process is continually repeated through the above steps because of the continuously changing environment.

The described steps belong to three distinct classes :

(1) Analysis/evaluation (steps 1, 3 and 5);

(2) Creative generation of ideas for alternative actions (steps 2 and 4);

(3) Decision (steps 3 and 5).

The sequence of these steps is not strict. However, the literature does not provide guidance on how each step should be executed in terms which are at the same time general and operational.

12.2 Some Clarifications

What, then, must be done to build a theoretical basis for planning? Before any answer to such a question can be attempted, some basic issues must be clarified - issues dealing with society itself.

One cannot resist the temptation to use, once more, the words of A. Toffler's book cited in the introduction of this study, which vividly describes what is happening to our modern society. Unless we understand this, we shall not grasp our inability to formulate a badly needed theory of planning, despite all our technological know-how, or, perhaps, because of it.

". . . a revolution shatters institutions and power relationships . . . students capture deans and chancellors, sexual standards are overthrown, great cities paralysed by strikes, international power alliances shaken, financial and political leaders secretly tremble . . . these are indisputable signs of our sick society that no longer can perform its most basic functions in the accustomed way. . . . We are simultaneously experiencing a youthful revolution, a sexual revolution, and the most rapid and deep going technological revolution in the history.

. . . Economists, even those who talk the language of revolution, are peculiarly conservative creatures. Conditioned to think in straight lines . . . they see in the growth of large scale organisations nothing more than a linear extension and expansion of old fashioned bureaucracy. . . . Born of scarcity, trained to think in terms of limited resources, they can hardly conceive of a society in which man's basic material wants have been satisfied . . . when they think about technological advances, they concentrate solely on the means of economic activity. Yet, the superindustrial revolution challenges the ends as well. It threatens to alter not merely the "how" of production but the "why" too. It will, in short, transform the very purposes of economic

activity. Before such an upheaval, even the most sophisticated tools of today's economists' are helpless. Input/output tables, econometric models, the whole paraphernalia of analysis that economists employ do not come to grips with the external forces - political, social and ethical - that will transform economic life in the decades before us."(18)

We shall return to the above statements in our conclusion. For the time being, we need them to emphasise that against such forces, our familiar concepts, values, thoughts and approaches which, until very recently, were helping us to clarify, reorder and relate all what was obscure in our situation, are now found wanting. Old methods of observation, analysis, hypotheses, resolution and classification became obsolete.

As long as we are unable to escape yesterday's thinking in addressing ourselves to today's decisions - the real dimensions of tomorrow - we shall not succeed in formulating an adequate theory of planning.

12.3 Some Comments on a Scientific Theory of Planning

In our introductory chapters we have stressed the necessity of a scientific approach to management and to one of its major functions, planning. We have called for the unity of science and management. But this call is not correctly understood by many planners and students of planning, nor is it sufficiently clarified by others.

Too many planning 'experts' or students of planning are under the impression that science can offer them infallible, unequivocal, prescriptive formulae.

This science cannot, unfortunately, do.

Our analysis has led us to the conclusion that, too many problems exist in planning in which different scientific disciplines are involved so that no single discipline can cope with analyses, problems, techniques and possibilities of solution. We have attempted to demonstrate that planning is a highly complex interdisciplinary enterprise that can be carried out successfully only by a team of scientists belonging to many disciplines. This should be a permanent team if consecutive, sequential, controlled, end-adapting and end-changing, continuous planning is to be of benefit to our society.

The different specific analyses and techniques at the disposal of planners cannot of themselves yield solutions which converge towards an optimum. Compromise decisions and tradeoffs are the rule;but they lack clarity as far as their consequences are concerned.

Very often we can seek only one or some of the many solutions that are reliable and that fully satisfy planning constraints. Under certain circumstances we can construct a model and through systematic application of heuristic procedures we can arrive at an optimal solution. But how often is such a solution too expensive, unattainable, lacking precise definition and even unnecessary? The majority of comprehensive algorithms of the mathematical optimisation of 'big' planning problems are often unsuitable, too precise, too assumptive, to be used for complex planning problems, lacking

frameworks and exactly defined structures.

We do not, as yet, have at our disposal accurate decision formulae (in spite of a highly formalised theory of decision-making and research into the theory of games for the study of strategies), which could be used either in highly complex, interdisciplinary problems, or for problems with only a few quantifiable variables.

We are not yet able to answer the question of how ecological factors should be integrated into social utility functions. Although the game theory and the decision theory have revealed the variability of strategies and their dependence on alleged criteria of optimality, theoretically infinite in number, there is very little practical application of the game theory at present.

No scientific theories will ever take away from the planner the burden of deciding about these criteria of optimality even if he were satisfied to elaborate alternative plans and models without attempting to recommend the most suitable ones. No-one knows better than he all the problems of structure, evaluation methods and criteria.

It is impossible to avoid purely technocratic and solution oriented decisions on planning problems through a special, two-way, permanent communication between planning experts of individual disciplines and decision-makers. The same constraints apply to other specialists who are unable to look at greater social and technical relationships of systems beyond the narrow limits of their special fields.

Even a specialist with a broad educational background is often unable to plan in critical situations without being influenced by techniques and technologies he has learned.

Our survey has quite clearly shown that, especially in complex social planning, a generalistic, normative, value-oriented and policy criticising approach still cannot be found. What Ozbekhan and Jantsch[19] call 'normative planning' or the 'normative level' of planning urgently needs an immediate, more thorough and deeper rational elaboration. No individual scientist or planning specialist can offer a methodology on which normative decisions and their criteria could be based.

Only a team composed of philosophers dealing in normative problems and projects, philosophers specialising in ethics, value theorists, sociologists of every kind imaginable, behavioural scientists and social psychologists together with planners and decision-makers can deal with it. Such a team can contribute, through its corrective cooperation and exchange of views, an effective control, even in such cases where no generally accepted, consistent, comprehensive theories exist.

The call for unity between science and planners must be formulated differently. What is urgently needed is a methodologist, a theorist of science in the broadest sense of the word, if the basic methodology of planning is to be called 'scientific and theoretical'. However, the theory of science is not a scientific discipline but a philosophical one. It deals with the rational construction or

reconstruction of criteria as well as with the analysis and critical evaluation of methods. Even if planning, in the strictest sense, does not happen purely scientifically, such an analysis could be called scientific and theoretical. It could be called a 'general, basic, methodological analysis of planning'.

We can understand the wish of students of planning for a unified method and a general theory of planning as a demand directed by them at the theorists of science to elaborate logical structures, predict reliability and to lay the foundation of natural and sociological-economic laws of the planning process.

Yet, in reality, they have not even been able to initiate scientifically and theoretically based research into the planning terms and theories offered at present. To our knowledge there is in the world's extensive literature on planning only Rieger's work in German, "Begriff und Logik der Planung"[20] which is interested in such an analysis, but even this 'logic of planning' is incomplete.

This work, as well as the work by Miller, Galanter & Pribram[21] taking the hierarchical nature of the organisation of behaviour as axiomatic and exploring the relation between the image and the plan, introduces some interesting definitions of plan, execution and image. A plan is, according to these authors, 'any hierarchical process in the organism that can control the order in which a sequence of operations is to be performed' or 'a rough sketch of some course of action'.

of so-called planning theories follow the traditional and outdated approach of 'what is?' questions (e.g. What is planning?), and then attempt to express the essentials, the characteristics and the nature of planning, inventing more or less precise definitions. Many authors think that plans or planning can be simply derived from specified goals. What is not clear, however, is whether a logical deduction is meant, and furthermore, how a structured framework for planning can be derived from terms or from stated goals.

Even more confusing are attempts at definitions of planning that start from the semantically faulty terms 'anticipation', 'mental anticipation of future actions' and end with such terms as 'planning is an attempt to use reason and foresight in ordering of human affairs' or 'a systematic proposal of a rational order on the basis of the available knowledge', or 'an attempt to act with foresight and intelligence'[21].

Not only are structures of order, schemes of action, frameworks and systems for action confused as far as the descriptive and normative way of thinking is concerned, but terms for planning such as order, reason and rationality are used that are even more vague than the term 'planning' itself. Naturally, such abstract terms need criteria for application, and they may be very different indeed.

One even finds some planning theorists who suggest that a general theory of planning already exists, and is fully described and valid for all planning phenomena. However, one has to take only the term 'planning' as it is used by them, and all that one

obtains is a heterogeneous and extremely loosely related family of terms relating to what is called by these 'experts', 'to plan' or 'planning'.

All attempts to classify plans according to some specific characteristics are also fruitless and hardly useful in practice for the development of a general (and yet usable) planning methodology. One could object that all these attempts may be considered as a part of the basis for the planning theory, but speaking frankly, it will remain only a part, completely insufficient for the development of the theory.

It is time to realise that from classifications of terms and definitions alone, no planning theory can be evolved, not even an empirical one. What gain can result from simply enumerating that a good plan is 'goal oriented', 'feasible', 'more or less economic', 'possibly easy to use', 'understandable', 'more or less operative', 'unified', 'continuous', 'relatively precise', 'flexible', 'optimising planning time' or 'cognitively and scientifically based'? Even the term 'strategic' is used by various theorists as having different meanings. Should such a classification of attributes take a 'strategic' position in the building of a theory of planning?

From all that has been said above, it should be quite clear that attempts to arrive at an empirical, general theory of planning through a scientific and theoretical analysis of pseudo-scientific and/or daily-used planning terms (in themselves inconsistent and vague) should be abandoned. The same applies to

planning methods? Should not solving of these problems be declared as critically urgent?

In the light of growing complexity of organisational and environmental problems any, even partially improved method is better than no method at all. Any 'laissez-faire' attitude in this direction amounts to gross, dangerous negligence.

We should, at least, be able to determine the relative unreliability of presently used methods. But how can we improve them not knowing to what extent they are reliable? Naturally, we need criteria and yardsticks.

Only the theory of science can construct and critically discuss the reliability of such criteria. Without a scientific and theoretical analysis of typical planning processes, their structures and methods, such criteria cannot, however, be rationally constructed. Furthermore, methods cannot be improved or generalised without being firstly analysed. This analysis must be carried out systematically and critically, and only the theory of science can carry out this urgent task. The co-operation of this science with methodologists and planning theorists cannot be delayed any longer.

Their cooperation must be directed, therefore, towards a critical analysis and discussion of practical planning procedures. To carry out this task, definitions are, obviously, necessary. But these can be developed near the discussed problem Definitions are only instruments, they are not knowledge in themselves. Once the methodological

problems are precisely formulated and defined from standard planning cases, they can be generalised, referred back to general scientific and theoretical questions and possibly solved. Only such cooperation will lead to practically applicable theories of planning. The scope of applicability and theoretical generalisation of such theories can then be widened.

Because the theory of science has up to now been interested mainly in the basic methodological problems of the natural sciences, mathematics, and to a lesser extent, with the history of science, very little attention has been paid by this discipline to the social and behavioural sciences. And so, the scientific and theoretical problems of the technical sciences and of the complex socio-techno-economic systems sciences, and especially of the planning science, have been completely neglected.

Planning is characterised through an especially intricate meshing of descriptive explanations, prognoses and normative statements, so much so, that in practice the purely exploratory prediction can seldom be separated from normative decisions concerning goal setting, strategic evaluation of means under limited resources, social valuation, orientation toward norms and appraisal of practicability and applicability. This is becoming, at present, more and more evident especially in research and development planning.

Very rightly, Ozbekhan points out[19] that up to now the normative premises and components of planning

proposals have not been sufficiently considered. If they are, however, not to limit our possibilities of action, they cannot be used unanalysed. Otherwise we shall plan our future systems as mere perpetuation and expansion of present structures, in other words we shall simply be extending the present. Planning must encompass adjustments in values as they change when dealing with complex, socio-economic systems.

Ozbekhan's interpretation of the system-functional and cybernetical planning concept can hardly be criticised. Planning interpreted as a function of a system does not and cannot include any future; it only attempts to perfect its present because it follows, rigidly, the scheme of information-analysis-proposal-decision based exclusively on technological feasibility. Ozbekhan contrasts this purely mechanistic planning model, which he finds represents the majority of presently used planning approaches, with his 'human action model'. His concept is fully flexible as far as norms and ends are concerned, and above all, his model is not addicted to perfect rationality. Even systems transformation and institutional changes planned on the basis of policy changes, and changes in value-adjustments are seen as planned according to his model. Many planners are under the impression that planning is a total perfecting rationality and this planning must and, per se, cannot be.

The role of normative factors and components, as well as their interplay with explanatory-descriptive elements, must, in future, be analysed more precisely. The usual, simple differentiation between the

indicative and imperative planning (anyhow both are in essence normative), or between the exploratory prediction and normative planning, is insufficient for this philosophically and methodologically very difficult complex of problems. The criteria of rationality and the evaluation yardsticks must, first of all be constructed or their role for, and in, the planning activity must be scientifically and theoretically assessed. Interesting scientific and theoretical statements have been made about criteria for goal-directed behaviour, and specifically for goal-intended actions, as well as for the theory of decisions under certainty, risk and uncertainty, and so forth[22]. Why should the same not be possible for planning concepts?

Even greater problems are found with the analytic theories of norms and values and with the analysis of their influence in the planning process. Unfortunately philosophers and theorists of science very often tend to underestimate the social and political effectiveness of value adjustments and reference to them. It is imperative that the role of 'image building'[23], of 'believed values' and of the ideological reference to such values should be more precisely comprehended.

New solutions to problems can be obtained from different disciplines and methods only if competing alternative proposals are systematically examined and their weaknesses, faults, contradictions, conflicts of objectives, incompatibility, false claims of applicability, and so forth, are criticised. The theory of science can offer for this task especially sharp instruments.

During the various evolutionary stages of planning concepts, controlled attempts to break down and disprove a theory can take place. Such disprovals can happen either because a better theory has emerged, or because logical and methodological criticism has been applied, or even because of philosophical discussions of criteria.

In these efforts the theory of science, that alone cannot develop planning methods, plays the important role of a critical, corrective agent. General speculation will never result in acceptable and practically applicable methods, but a cooperative analysis and criticism of individual problems will!

In this censoring function should be encompassed not only all prerequisites for the improvement of planning methods (by analysing the general, methodological problems) but this function should also offer a constructive help for their solution. It should also include new evaluation methods and criteria for the construction of the theory.

Other important problems of the planning process can be defined more precisely by the theory of science through its analysis. For example, the role of different kinds of models for explanation, verification, prognoses or individual, conditional projections can also be analysed. Up to now the majority of planning theorists have adopted the Popper-Hempel thesis[24] of the identity of structure of the explanation and prognosis, although this thesis has had to be given up[25].

The fact that the majority of prognoses and

projections are based mostly on trends and similar, accidental, empirical regularities instead of on truly scientific general, natural and social laws is lightly dismissed by many optimistic planners and futurologists. The scientific and theoretical analysis could act here as an especially effective corrective agent, even though the theory of science has not yet solved the problem of the exact definition of natural laws.

Not even one comprehensive, scientific and theoretical monograph on rational prognoses could be discovered in the enormous amount of literature on planning and related subjects. In addition, epistemological analysis of quasi-laws that make up the majority of scientific social hypotheses cannot be found in the literature either.

The above should suffice to illustrate the necessity of methodological and scientific and theoretical investigations into the problems of planning and prognosis.

Neither a total planning optimism nor a complete sceptical avoidance of formalised, organised and systematic company planning can represent commendable strategies. Methods of medium reliability are better than traditional methods of 'laissez-faire'. Yet, the aimed-at and systematic use of relatively reliable methods presupposes the possibility of evaluation of these methods with adequate criteria for this evaluation. And this is not possible without scientific and theoretical training.

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PART IV : THE EXTENT AND NATURE OF CORPORATE LONG-RANGE PLANNING PRACTICE IN SOUTH AFRICA

13. BROAD DESCRIPTION OF LONG-RANGE PLANNING AMONG SOUTH AFRICAN FIRMS

13.1 Introduction - The Present Research - Basic Considerations

Our survey of literature on planning has proved beyond any doubt that prediction and planning are becoming more important, and that emphasis is now being placed on developing formal, systematic, integrated planning. Naturally, the idea of planning is still not accepted by some scholars, for example, the Swiss economist Bohler, who states categorically that in most firms the so-called 'long-range' planning is still a matter of ideology rather than reality.(1)

However, those who criticise and condemn are heavily outnumbered by those who are in favour of this activity. At present, as we have already noted, there is an enormous amount of literature on planning and this is increasing steadily. This increase seems to be in direct proportion to the quickening tempo of social, technical, political and ecological changes. The primary problem for the whole of humanity is and will be to an ever increasing degree to find a way of organising itself efficiently and effectively. The solution can and must be found through more conscious long-range planning.

What applies to the whole must per force apply to any of its parts, and South Africa is no exception. If South African society wishes to survive in its

projections are based mostly on trends and similar, accidental, empirical regularities instead of on truly scientific general, natural and social laws is lightly dismissed by many optimistic planners and futurologists. The scientific and theoretical analysis could act here as an especially effective corrective agent, even though the theory of science has not yet solved the problem of the exact definition of natural laws.

Not even one comprehensive, scientific and theoretical monograph on rational prognoses could be discovered in the enormous amount of literature on planning and related subjects. In addition, epistemological analysis of quasi-laws that make up the majority of scientific social hypotheses cannot be found in the literature either.

The above should suffice to illustrate the necessity of methodological and scientific and theoretical investigations into the problems of planning and prognosis.

Neither a total planning optimism nor a complete sceptical avoidance of formalised, organised and systematic company planning can represent commendable strategies. Methods of medium reliability are better than traditional methods of 'laissez-faire'. Yet, the aimed-at and systematic use of relatively reliable methods presupposes the possibility of evaluation of these methods with adequate criteria for this evaluation. And this is not possible without scientific and theoretical training.

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PART IV : THE EXTENT AND NATURE OF CORPORATE LONG-RANGE PLANNING PRACTICE IN SOUTH AFRICA

13. BROAD DESCRIPTION OF LONG-RANGE PLANNING AMONG SOUTH AFRICAN FIRMS

13.1 Introduction - The Present Research - Basic Considerations

Our survey of literature on planning has proved beyond any doubt that prediction and planning are becoming more important, and that emphasis is now being placed on developing formal, systematic, integrated planning. Naturally, the idea of planning is still not accepted by some scholars, for example, the Swiss economist Bohler, who states categorically that in most firms the so-called 'long-range' planning is still a matter of ideology rather than reality.(1)

However, those who criticise and condemn are heavily outnumbered by those who are in favour of this activity. At present, as we have already noted, there is an enormous amount of literature on planning and this is increasing steadily. This increase seems to be in direct proportion to the quickening tempo of social, technical, political and ecological changes. The primary problem for the whole of humanity is and will be to an ever increasing degree to find a way of organising itself efficiently and effectively. The solution can and must be found through more conscious long-range planning.

What applies to the whole must per force apply to any of its parts, and South Africa is no exception. If South African society wishes to survive in its

(1) How selected South African firms carry out formal, long-range planning.

(2) Whether there are correlations between the extent of adoption of formal, long-range planning, the length of the planning horizon, and other factors such as financial risk, opportunity and organisational complexity.

(3) How diffusion of formal, long-range planning takes place among South African firms.

(4) What changes South African companies intend to make in their planning procedures.

(5) How much planning is necessary in South African firms.

(6) Cost/benefit relationships of planning in South African firms.

(7) Gaps and inadequacies in the planning process of South African firms.

Several possible approaches were open to us. We were anxious to choose an approach that would give us a basis for the formulation of our main hypothesis on how South African firms approach, install and practice formal, long-range planning. To satisfy this requirement, we began our enquiry with a broad review of human knowledge and have narrowed it to areas of human knowledge particularly relevant to business planning.

From this study of available literature a generally applicable conceptual planning model has emerged. This indicates that the basic approach to all types of business planning carried out overseas is essentially the same. The model suggests that the

following steps should be taken :

(a) Planning and organising the planning effort.

(b) Defining planning premises.

(c) Determining company objectives.

(d) Developing policies or guidelines for action.

(e) Developing implementation plans.

(f) Coordinating and controlling planning.

(g) Developing a suitable organisation and staff.

(h) Reviewing of plans.[2]

13.3 The Formulation of Hypotheses

The formulation of hypotheses - an essential step to any scientifically oriented research - was the next step. Richard D. Crisp[3] defines a hypothesis as a "tentative theory or supposition set up and adopted provisionally as a basis explaining certain facts or relationships, in the further investigation of other facts or relationships. It is, therefore, an assertion that something may be true, stated in terms that make it amenable to testing".

These hypotheses have been derived from the objectives of our study and their testing is the purpose of doing further analysis.[4] The research findings are then used either to accept or reject the hypotheses presented. In this study, the writer has used the findings of his review of the literature to substantiate a number of assumptions on which the presented hypotheses are built. These hypotheses are formulated as follows :

(1) Major Hypothesis

The practice of South African firms conforms to the conceptual planning model found during our study of the literature and outlined in section 13.2 above.

(2) Sub-Hypothesis

Inter-related critical factors that justify the adoption of formal, long-range planning and influence the length of planning horizons are :

(a) High financial risk or opportunity; and

(b) Organisational complexity.

The first broad class may be broken down into factors such as degree of capital intensity, rate of technological change and the variability of the relationship between sales volumes and profits. The second broad group can be further subdivided into the key factors, such as size, type of organisation structure and the degree of vertical integration.

If the above hypotheses hold, association between the extent of use of formal, long-range planning, the length of planning horizons and the above key factors should be identified. Thus, one could expect that long-range planning would be more fully utilized and that planning horizons would tend to be longer in some industries than in others.

13.4 Testing of Hypotheses

Unfortunately, because our sample has not been selected at random, the available statistical

techniques cannot be applied to prove the suggested correlations. We have to be satisfied with comparative statements only. However, similar studies, carried out overseas[5] have shown that the correlations suggested above are valid. The highest correlation has been found between extent of long-range planning activities and size and organisational complexity. The rate of technological change ranked second, and the degree of capital intensity third. The rate of variability of turnovers and profits showed very little correlation with planning. The correlation between long-range planning and vertical integration could not be assessed because a practical measure for the degree of this integration was not available.

In business research, the researcher must devise means of testing the truth, generality, or even just the utility of a hypothesis by whatever methods appear "logical". Because a controlled experiment was not possible, to test sybhypotheses under (a) and (b) in terms of the hypothetical key factors, Table 5A was compiled. Some difficulties had, however, to be overcome. For example, capital intensity can be measured in many ways, and the discussion of each possible measure is beyond the scope of this study. For this purpose we have used the relationship between the net fixed assets (fixed assets at cost less land and buildings) and the number of people employed. This approach can, however, be used mainly for industrial organisations; as far as mining companies are concerned, we are unable to obtain the figures of net fixed assets, and use, therefore, the total assets as a basis for the measure of capital intensity. Such a measure is, however, inappropriate for banks and building societies, stores and service firms and so

in these cases only the index of organisational complexity was used.

This is, obviously, a different kind of measure that lends itself more to classification than measurement. The size of a firm is an elusive concept. It is difficult, for example, to distinguish the different structures of organisations in terms of functions and divisions and to avoid these difficulties, we have allocated the participating firms to one of the following classes :

(1) Single plant
(2) Multiplant
(3) Subsidiary of foreign company
(4) Multinational firm
(5) Holding company (conglomerate).

To show the influence of the degree of technological change the participants will be allocated to one of the following ranks : high, medium/high, low, very low. Naturally, any assessment of the rate of technological change will always be qualitative and our ranking used in Table 5A should be seen in this light. This table shows quite clearly, however, that the firms participating in the survey and claiming to practise formal, long-range planning (in whatever form it may be carried out), exhibit one or more of the key factors influencing the adoption and practice of formal, long-range planning. The combination of these key factors also determines the depth of the planning process.

The assumption for the above analysis is that the suggested factors are independent of one another, and

(b) Whether assumptions about the future are quantified and translated into forecasts.

(c) Whether alternative directions, which the firm might follow, are developed and evaluated in the light of planning premises.

3(a) Whether the corporate objective that will most profitably exploit identified market opportunities, is selected and based on this evaluation.

(b) Whether principles of action, a general philosophy and an overall strategy that will guide and control all phases of planning, are stated explicitly.

4. After alternatives have been developed and evaluated, how the company chooses the policies which best fulfil corporate objectives within constraints imposed by the market, the industry and the company's own basic premises concerning its own character and profile.

5. After the development and evaluation of alternatives

(a) Whether implementation or operating plans, including subsidiary objectives for all functional areas, are selected.

(b) Whether it is ensured that implementation plans are consistent with overall planning premises, objectives and policies.

(c) Whether they are established within the capabilities of the firm under study.

(d) Whether the plans are quantified wherever possible.

(e) Whether the company specifies derivative policies, procedures and rules needed in all planning areas.

6(a) Whether completed implementation plans are reviewed and coordinated.

(b) Whether controls for measuring performance against plans are developed; whether they are in the form of budgets.

(c) Whether management information systems and other scientific decision-making tools are used in developing plans and their control systems.

7(a) Whether suitable organisation and staff are developed.

(b) Whether adequate administrative procedures are established to implement the plan.

8. Whether the plan is reviewed, adjusted or refined periodically.

9. How South African firms intend coping with future changes.

It may be objected that our questionnaire was too long (55 questions) and difficult. To this possible criticism we answer that we set out to establish the extent of the use of formalised, systematic long-range planning, and not of a simple activity, such as budgetary control. It may be assumed that the planning experts in the South African companies practising formalised long-range planning would be familiar with the 'technical' terminology of our questionnaire.

Use of the questionnaire made it possible to obtain information on and insight into the scope, aims and future trends of long-range planning as practised by leading South African firms. The following excerpt

The companies have been selected at random within each group of the Bierman's Financial Yearbook 1973 classification which is shown below with the number of companies selected in each group :

Banks and Building Societies	14
Mining Companies	28
Financial Houses	30
Industrial Organisations	266
General	12
Total	340

The details of this profile are shown in Table 1.

However, because the above sample includes eight conglomerates, representing 508 wholly-owned subsidiaries with 159 branches, six partly-owned subsidiaries and 55 associated firms, spread geographically throughout the Republic, the total number of firms covered by our survey is actually very much higher, and the percentage of replying firms would, in reality, also be much higher than that shown in our tables.

This situation has forced one supplementary issue into our study, and that is to illustrate how these organisationally highly complex conglomerates - whose activities cover the whole spectrum of the economic activity - carry out the planning process. A case study of one selected conglomerate will, therefore, be included in our work, though separately reported and not covered in this thesis.

The sample is obviously biased towards larger companies

but it will, hopefully, increase rather than decrease the value of the study. Naturally, the chances of finding a formalised, long-range planning system practised by larger firms are greater than in the case of smaller companies. We should, however, bear in mind that although the sample selection adds to, rather than detracts from, the value of our study, all statistical references relate only to the firms surveyed and not to organised planning in the whole of South Africa. General conclusions drawn from the findings must, therefore, be seen in this light.

About 20% of the selected sample operate internationally. Annual turnovers of participating firms range from R150 000 to R416 million and the number of people employed by these firms varies from 15 to 107 000, as shown in Table 2.

13.7 Definition of South African 'Planning Company'

The reply of 'yes' to our question, 'Does your company have a formal planning sequence?', was the basis for classifying some firms as 'Planning Companies'. 'Non-Planning' firms are those that have answered this question in the negative. Companies that did not give any indication on their planning activities are classified as 'Other than Planning'.

The companies were then separated into 'Corporate (long-range) Planning' and 'Planning' firms. The criterion used for this division was, in the former group, a planning horizon of at least three years, and, in the latter subset, one year planning period.

13.8 Other Considerations

Other subhypotheses could be formulated; for example, that other factors such as misconceptions, today's pressures, informal leaders' pressure and management style, may influence a firm's planning activity. Indeed, these influences may even seriously impede its development. In this connection, one question arises : To what extent were South African firms prevented from introducing organised and formalised planning because of these factors?

Initially, we considered covering the aspects discussed above in our research, but questions aimed at elucidating them, however subtly they may be phrased, are seldom answered objectively. A far more elaborate research method would have to be used to obtain answers of value.

Without any doubt, the most important factor in the firm's operation, is the attitude and approach of the chief executive. Naturally the style of management is also determined by other factors such as economic environment, technology, historical tradition, norms of a specific culture, and so forth.

In South Africa important influences on management emanate from the different cultural and historic backgrounds of Afrikaans and English speaking sectors. We believe that specific styles of management have indeed developed among South African firms, dictated by these historical, cultural, linguistic and social factors.

A detailed study in this respect would be most interesting but it is beyond the scope of this work.

13.9 Some Clarifications

Our questionnaire was constructed to give answers describing the following aspects of the planning process practised by South African firms :

(1) Organisation of planning efforts;

(2) General aims, philosophy and policies relating to the planning process;

(3) Creative generation of ideas for alternative actions;

(4) Decision-making and establishment of specific plans; and

(5) Coordination, implementation and control of these plans.

Answers received have been analysed and findings formulated to highlight the manner in which South African companies carry out these planning steps. However, as our survey covers long-range planning among South African firms on a nation-wide basis, a bewildering mass of data has to be digested and presented to offer profiles of significant features only. Our hypotheses are then tested against these findings.

We have formulated our findings by analysing answers to and comments on each question of our questionnaire. To facilitate a comparative analysis each question has been prefaced by our findings on how the particular planning step is carried out overseas. Although details have been kept to a minimum, the reader's patience will be, obviously, taxed.

Every section will include a summary of significant differences and similarities between planning methods of various groups of the sample. Finally, we will supplement this approach with a description of how all these planning steps, as set out sequentially in our questionnaire, are carried out by one selected South African company.

We will also discuss the world trends in long-range planning (section 27) and the gaps and shortcomings of present practices and problems in long-range planning faced by South African firms (in section 28).

Companies completing the questionnaire have, in most cases, recognised the necessity and importance of long-range planning in their letters accompanying the questionnaire, but, obviously, the acceptance of this function is affirmed with many qualifications.

As the Chairman of a printing and publishing group says: ". . . The question of long-range planning is only now getting attention mainly taking form of planning discussions between various members of top management which does on occasions lead to surveys by certain staff members of specific aspects of the problem."

And from the chief executive of a beverage company : ". . . As general information, however, we wish to advise that we are most definitely engaged in short-, medium- and long-term planning in all our financial departments and these plans are regularly revised to determine whether internal and/or environmental changes require adaptation. . . . We further regard the proper

in achieving this. As a Management Philosophy we believe in this maximum flexibility."

Naturally, all answers received were not enthusiastic about formal long-range planning, and some were not even positively disposed towards this new management technique, as the following extract clearly illustrates : "We cannot employ a planning officer nor do we develop a strategy on a formal basis. It is the function of our chief executive with the assistance of his executive directors to formulate the overall strategy, and be it informal, the relevant factors are taken into consideration. Also certain facts which affect the formulation of the overall strategy, have to be supported by formal and detailed investigation. In certain instances, certain aspects of the overall company strategy and policy may be committed to paper, where this is called for whether because of the complexity of the concepts involved or because it is desirable to have them on record for future reference." (A paper and pulp company)

13.10 Response to Questionnaire

Tables 3 and 3A show that of 340 companies to which the questionnaire was sent, 176 firms, or 51% of the sample, replied either through completing our questionnaire, or explained their reasons for not doing so. 81 Companies completed the questionnaire, which represents 23,8% of the total sample and 46,4% of all replying firms. However, the overall coverage of replying firms is much higher as explained in section 13.6.

Reasons for not completing the questionnaire are also

According to supplementary information, South African oil companies have introduced some form of formalised planning since the end of World War II (1946-1950).

Table 4 cannot, for these reasons, be accurate though it would appear from the analysis of responses received that what could be called 'organised, systematic and formalised company planning' has been increasingly introduced by South African firms since 1967. The last date indicated by respondents is 1972. In 1973 (see Table 35) four companies intended to introduce formal long-range planning, while twenty firms intended to improve their existing planning systems.

13.11 Planning Horizons (Section A of the Questionnaire)

According to our explanatory note outlined in section 13.7, a 'Long-Range Planning' company qualifies as such if it has a formal planning sequence covering at least three years. Interpreted in this way, the answers to our specific question indicate that among the 81 companies (out of 176 responding firms) that completed the questionnaire (2 firms only partly completed the questionnaire), only 68 firms would qualify as practising long-range planning. 11 Firms practice planning with a planning horizon of 1 year only. 36 Companies qualify as 'non-planning' having declared that they do not carry out any planning activity, while 61 firms did not indicate the extent of their planning activities.

This analysis can be summed up as follows :

From 176 responding firms		100%
68	practice long-range planning	38,6%
11	plan one year ahead only	6,2%
36	do not plan at all	20,0%
61	did not indicate their activity	35,2%

Most South African companies interpret the term 'long-range' as involving anything from three years or more, although some of them interpret the two-three years planning horizon as 'medium-range' and a few firms consider any planning of three years ahead as 'short-term' in nature.

Not surprisingly, some South African mining companies regard planning up to five years as 'medium-range' planning whereas for other firms in the same group it means 'long-term' planning.

In one diamond company, a five-year planning cycle is referred to as 'operations', an eight- to ten-year cycle as 'development' and more than 20 years as 'ore development planning'. Another diamond mining company divides its planning horizon into one-to-two years as 'short-term', five years as 'medium-term' and fifteen as 'long-term'. The only gold mining company participating in our survey seems to indicate in its reply that its planning horizon is equated to the mine's life cycle - without specifying this term. A manganese mining company plans for one year ahead only.

One financial mining house answers as follows :

". . . You have to realise that . . . we have investments in numerous as well as often unrelated industrial activities. In the fact that they are investment companies, they do not, therefore, have formal long-range plans of the kind covered in your questionnaire."

This is a very large firm indeed, and yet, they do not seem to understand the meaning of long-range planning.

For some firms of the hotel industry group, three years planning period also means 'short-term' planning.

The majority of firms of the building and allied industries group consider the term of five year period as medium planning horizon.

The chemical industry's terms are eight to ten years for long-range planning, three to five years for medium-range planning and one year for short-term planning.

Among the firms of the group of clothing and knitwear industries, one defines four years as long-term planning; this seems to be the length of the life cycle of a fashion.

The information available on the footwear and leather sector would indicate that the members of this group plan only one year ahead, and this in terms of output and profits only.

The same approach seems to be applied by some members of the furniture and domestic appliances industry;

however, one member of this group plans for five years and considers this term as long-range in character.

In the category of firms composing the group of 'iron, steel, engineering and electrical', different interpretations of the length of the planning horizon are obviously inevitable. Terms of two to five years are considered short- as well as long-term in character, whereas some firms consider this term as medium.

The firms of the 'motor and transport' group have seemingly adopted the same interpretation. Terms vary from three to five years as short- or long-term, and a ten year term is long-term, but the majority of firms in this group plan only one to two years ahead and very often planning is confused with budgeting.

The 'paper, pulp, packaging, containers and timber' group naturally show widely ranging approaches depending on the firm's specialisation. The paper and pulp firms' planning horizons cover from six months to ten years and they consider the period of five years and more as long-term in character and one year as short-term planning. For a company producing metal closures a term of five years is a medium-term planning horizon, while a company manufacturing metal containers has had an annual form of budgeting that has functioned since the 1930's and a four year plan, termed as medium-range, since 1970.

The groups of the pharmaceutical and medical industry, textiles, carpets, blankets and yarns, and retailers and wholesalers do not seem to be interested in any kind of planning.

Finally, for South African oil companies, the five year term can be interpreted as either a short-, medium- or long-term planning horizon. There is no uniformity in their approach to the planning period problem. It may depend on the prevailing economic, political and international factors that they may be facing at the time.

As far as the term 'short-term' is concerned, the majority of companies surveyed take it to mean planning for one year ahead, and usually identify this kind of planning with annual budgets. Tha main emphasis seems to be on operating figures rather than on plans.

To what extent do our findings above confirm our subhypotheses that specific conditions, such as financial risk or opportunities and organisational complexity, influence the introduction of formal, long-range planning, and the length of the planning period? The assumptions of the influence of these key factors on the length of the planning horizon will be discussed below. Their influence on the introduction of formal, long-range planning will be tested later.

Banks, mining companies, financial houses with industrial investments, industrial organisations such as firms belonging to the groups of beverages and hotels, building and allied industries, chemical firms, iron, steel, engineering and electrical firms, motor and transport industries, printing and publishing firms, stores as well as the sugar industry and match manufacturers, show a general tendency towards a planning horizon of from two to five years. Only a small minority of these industries plan for only one year ahead.

The key factor influencing the above pattern seems to be the same as overseas, namely the degree of organisational complexity brought about by the size, structure and type of these firms, and, in the chemical industry, to some extent, the rate of technological changes. However, in the case of banks, building societies and financial houses, the financial risk and opportunity are undoubtedly the major influence , with organisational complexity coming a close second.

As far as mining companies are concerned, financial interests may again be compelling factors, especially for diamond mines; the coal mines are most probably members of some holding companies or conglomerates, and have adopted long-range planning on instructions received from their headquarters.

In some industrial organisations, both the capital intensity and the rate of technological change may also be exercising their influence. It is, however, very difficult to isolate, for example, the rate of technological change in individual cases, because technological change is subject to subjective evaluation and different experts would arrive at different ranking. What for one expert may be a medium/high rate, may be a low degree ranking for others, and vice versa.

On the other hand, sectors such as clothing and knitwear, footwear and leather, furniture and household appliances, and a small number of iron, steel, engineering and electrical firms plan for only one year ahead. We interpret this to be due to their small size and lack of organisational complexity.

The fishing, food, footwear and leather, pharmaceutical and medical, textile, carpet, blanket and yarn industries, do not seem to be interested in long-range planning. The reason for this lack of interest may well be the lack of respective managerial skills, the lack of organisational complexity, low degree of capital intensity and low rate of technological change. Some of these groups when replying to our questionnaire have, however, indicated that they anticipate introducing formal planning in the near future.

13.12 Formality in Planning

A formal approach to planning requires that all assumptions upon which the plan is based, and all specific policies essential to the plan's success are written down and included in the final plan. To present forecasts and budgets as the final plan cannot be taken for long-range planning activity. A written structure of planning assumptions permits managers throughout the organisation to make decisions which are in line with objectives at the highest level.

To what extent the necessity of such formality is understood by South African firms is evidenced by Table 6. Of the 81 companies that have completed the questionnaire, 86,7% or 70 firms produce their final plans in written form, while a small minority of firms seem still to fail to understand the importance of written plans.

13.13 Staff and Line Involvement in Planning

In developing plans, there is an obvious need for objectivity and for certain technical skills.

However, in seeking these benefits through assigning planning tasks to staff specialists only, certain losses will most probably be incurred as far as the implementation and control of plans are concerned. If the responsibility for planning is removed from the line management, how can it be made responsible for results? If plans fail, are the staff specialists or the line management blamed? Some compromise must, therefore, be found by providing the specialists with assistance and leaving the ultimate decisions on planning premises to the line management who must get the results.

Measured against this normative background, how is this critical problem solved by South African firms? Table 7 illustrates the different approaches selected by South African firms in their effort to obtain the maximum efficiency and effectiveness in their planning efforts. The majority of them (44 of the 79 firms that have fully completed the questionnaire) seem to prefer the compromising solution - the staff and line cooperation in the elaboration of their corporate plans. In only two cases is the planning function carried out by the board of directors advised by senior executives. In thirteen firms the planning burden is placed solely on staff and in another thirteen companies planning is a wholly line function.

On an inter-industry comparative basis, industrial organisations seem to favour the combined line and staff approach to planning. The same attitude is adopted by the motor and transport sector and by the stores. The mining industry also favour this approach.

Sector	No. of Planning Units	No. of Participating Firms
Iron, Steel, Engineering & Electrical	5	16
Motor & Transport	3	7
Paper, Pulp, Packaging & Containers & Timber	3	4
Printing & Publishing	1	2
Stores	3	6
Sugar	3	3
Tobacco & Match	1	2
General : Oil Companies	3	4
Service	1	1

Capital intensity, financial risk and opportunity and organisational complexity are again the motivating factors behind the installation of such units, with organisational complexity ranking as the most powerful influence.

Given below is the frequency distribution of the number of people employed in these units :

Number of People in Planning Unit	Number of Companies
1	7
2	8
3	4
4	2
5	5
6	3
7	1
8	1
26	1

An oil company holds the record of 26 people employed in its long-range planning unit, followed by a retail chain with 8 people, a diamond mining company with 7 people, one engineering firm with 6 people, a paper firm with 6 people and an oil company with 6 people. The average number of people employed by a long-range unit is 3 people.

The numbers of employees per planning unit indicated above, are considered by companies involved as sufficient to carry out efficiently the planning tasks or other assigned activities.

Although no detailed analysis has been carried out, the above summary provides several possible reasons for the present characteristics of long-range planning groups. It is apparent that technology and organisational complexity has an impact on the structure of planning groups, as found in our sample, where units with more than four people belong in the diamond mining, paper and pulp, motor and transport, engineering, oil and tobacco industries.

13.15 Designation of Long-Range Planning Units and Their Heads

Long-Range planning units obviously have a variety of names and, accordingly, those who head them will have a variety of titles. Here are examples of both :

Names of Long-Range Planning Units

Planning Department
Corporate Planning Divisions
Mine Planning Department
Study Department
Group Planning Unit
Corporate Planning Department
Forward Corporate Planning Group
Group Finances Manager's Department
Group Management Planning Unit
Physical Planning Section
Marketing Planning Section
Management Committee
Corporate Planner's Office
Planning Advisory Committee
Group Strategic Planning
Group Strategy Planning Team
Planning and Supply Department

Names such as Mine Planning Department, Study Department, Physical Planning Section and Planning and Supply Department are used by South African mining companies. As far as the other names used for planning units are concerned, we have failed to establish any kind of correspondence between the name used and the industrial characteristics of the firm using the name.

Titles of Heads of Long-Range Planning Units

General Manager Planning
Manager Planning
Section Manager Study
Group Planning Manager
Corporate Planner
Group Planning Officer
Planning and Supply Director
Group Planning Manager
Group Planner
General Executive
Group Finance Manager
General Manager of Management Planning Unit
Manager Corporate Planning
Head of Corporate Planning
Group Management Accountant
Deputy Managing Director
Group Planning Executive
Group Manager Planning

Only three of the heads of South African long-range planning units hold the rank of assistant managing director or general manager or managing director.

Most of these planning units report to one of the following executives in their respective companies :

Chairman of the Board
Board of Directors
Managing Director
Chief Executive
Financial Director
Marketing Director

Head of Finance, Planning and Control
Manager Investment
Financial Manager

In many companies the initial thrust for long-range planning arises from the financial group in the company, and often the role of the company's planner is combined with that of accountant, financial manager or director. However, as pointed out in the following section, the status of the long-range planning function will be influenced by the status of the individual placed in charge of the planning unit. His background will be one of the most important factors in determining his importance as well as his influence on other members of the organisation. Let us analyse this aspect.

13.16 South African Planners' Backgrounds (Section C of the Questionnaire)

The information below highlights the basic disciplines or training of the thirty-two professional planners who are in charge of the long-range planning units :

Discipline	Total
Consulting	1
Agriculture	1
Engineering	3
Accounting/Finance	10
Banking/Insurance	2
Economics/Finance	3
Engineering & M.B.A.	1
Economics, Law & M.B.A.	1
Physics, Mathematics & Economics	1
Economics/Accounting	2
Economics	3
Chemistry & M.B.A.	1
Finance/Military	1
Mining Production	1
No Response	1

By "professional planner" is meant the executive who is in charge of practical planning in an organisation. Most of the planners have had a varied experience in a number of different functions.

Although the information above seems to reflect a wide variety of backgrounds, planners with economics and accounting/finance backgrounds represent 66,6% of the total. More than one-half of this group are financial experts. This fact is firstly a reflection of the evolution of planning from budgeting and secondly because of the fact that in a number of companies planning was organised and controlled for various reasons by those in the accounting section. This is due mainly to confusion about the nature of the planning activity, which, for many executives even now, means primarily figures. This stems from the misconception that, because all plans must be expressed or translated in figures, the accountant, financial manager or secretary is the most logical choice. Very few chief executives realise that the talents and attitudes of these specialists are almost the opposite to those required in a professional planner, as shown in our previous analysis (see section 11.3).

In this context it is interesting to note that British companies with many years of experience in long-range planning, feel that it is psychologically disastrous to place planning under the control of the financial section. They find that accountants tend to be rather narrow in their approach to planning because they are used to black and white, and are unable to deal with uncertainty; they look at figures but are unable to look behind them.(6)

As far as the status of planners is concerned, there are two possible ways of measuring it; either by their salaries or by their reporting relationship. We consider the second approach to be more objective because salary probably does not have too much to do with the status of planning. In many cases it may merely result from personal relationships. Prima facie, reporting directly to the chief executive would mean a higher status than reporting, for example, to a financial director or manager and this interpretation would imply that South African planners who do not directly report to the chief executive or the board of directors are unlikely to have sufficient standing within the organisation.

Our analysis showed that 32 companies had formal planning departments and that 20 planners reported directly to the chief executive or board of directors, while only 12 planners reported to the financial directors or managers. To what extent the firms of the first group are more effective in their planning function could not be ascertained, but if American and British findings are valid for the South African situation, then this group of companies should be far more effective.

13.17 Planning Stimuli (Section D of the Questionnaire)

As shown in Table 9, the emphasis on the importance of the planning function differs among South African companies, though the majority considers planning necessary for a number of reasons. Their reasons for the introduction of formalised planning by them do not necessitate any comments, but one thing comes out clearly. Had planning not satisfied a need, its introduction and its development would never have taken

place. Planning, being both a philosophy and a style of management, requires a certain disciplined approach which may not be in line with the company's tradition or the chief executive's particular philosophy.

Some companies have introduced formal planning in response to a combination of needs, the timing and extent of acceptance being influenced by a company's origin and environmental conditions. This may well have been the case in the majority of international companies operating in South Africa, which need to conform with the objectives of their foreign parent companies.

However, the most explicit reasons stated in Table 9 are the shortest ones, such as 'to develop planned growth', 'lack of profit growth' and 'necessity'. Though not fully explaining the reasons for introducing formalised planning, they do, nevertheless, say quite clearly that, owing to some forces in the firm's environment, further growth or increased profits were impossible without formal planning. The other réasons advanced merely paraphrase the same basic need which is to take cognisance of the environment, find the opportunities available in it, assess strengths and weaknesses and manage resources so as to fully exploit these opportunities.

We have found no difficulty in relating our analysis of reasons given to us by our respondents to our hypotheses postulated in section 13.3. As a matter of interest we classify and relate some of these reasons below :

Our Hypotheses Reasons Given by Respondents

(a) Financial Risk or Opportunity

To develop planned growth
To highlight group targets
To ensure that capital is efficiently employed
To make sure that the financial resources are available for the expansion
Lack of profit growth
To evaluate future growth in
To decide where future investments should be placed
Etc.

(b) Organisational Complexity

To coordinate the formal planning process
To coordinate and assist divisions in their plans
To coordinate and control the activities of operating companies and ensure the optimum use of group resources
To coordinate the company's planning and appraisal to the optimisation of the mines operations
Etc.

13.18 What the Long-Range Units Do (Section E of the Questionnaire)

The duties and responsibilities of South African corporate planning units commonly mentioned, can best be described by the respondents' own definitions.

So, for example, the present function of the long-range planning unit in a large international bank is seen as follows : "To act as catalyst in the development of plans for the bank as a whole, and for the various organisational units within the bank."

For another large bank this function appears to be

Group as a whole and individual companies and businesses towards the attainment of their agreed objectives; (d) To assist the Chief Executive in maintaining a balanced Group portfolio of businesses and in the best allocation of Group resources."

The following example taken from the reply of a firm specialising in mining equipment is in the form of the following simple statement : "The answer to this question could be summarised as follows : to assist corporate management with strategic planning and to coordinate operational planning systems."

A large manufacturer of motor vehicles describes this function as : "setting out planning for various periods concerning marketing, creation of physical facilities, capital requirement and detailed planning of the introduction of new models."

A pulp and paper manufacturer offers the following description : ". . . coordinates short-term planning, initiates long-term plans and directs operations and market research to assist the company in an efficient and orderly programme of planning and expansion."

Compare this description with that of a manufacturer of metal containers : "To compile and monitor plans."; and with one in a similar vein of a manufacturer of plastic ware : "To control.".

A large chain store firm specialising in distribution of books, stationery, magazines and newspapers states that the present function of the long-range planning unit is as follows : "The unit works with line management in monitoring forecast changes; financial

(c) helping individual units in the planning process as required; and

(d) coordinating all plans and maintaining consistency according to the company's objectives.

Several companies also assign to their planning units some other unusual duties which are outside the purely planning activity. In one case, the planning unit is responsible for supplying financial information, and one planning unit carries out preliminary investigations for acquisitions and mergers.

13.19 How Planning is Accomplished by Those South African Firms Who Have Not Set Up Planning Units (Section F of the Questionnaire)

Out of 79 planning companies, 47 do not have special planning units and in these firms one naturally finds various approaches to the planning function. In some firms, key executives do the planning, helped as far as information is concerned, by other departments such as marketing, production or finance. The following examples illustrate clearly the various approaches.

One large international bank had introduced Management by Objectives in 1969 and annual planning and budgetary control shortly thereafter. They are now in the process of linking these activities to a five-year plan.

For a coal mining company, long-term planning means thinking of mining layouts for the next five years at the planned level of production. Financial planning is undertaken for the same period, but is not detailed, and as the respondent puts it, is "in fact very sketchy".

A diamond mining company describes its planning activities as follows : "Long-range planning is done within the various departments and coordinated by the assistant general manager."

In a gold, uranium and pyrite mining company, long-range planning is accomplished by means of an informal committee consisting of departmental heads who meet periodically as requested by management to revise planning (if necessary), and consider requirements for the next annual formal review.

A holding company, owning a number of reasonably small subsidiary companies in the industrial field, has a policy which allows management of subsidiaries to operate and develop their own plans within certain overall financial and operating constraints. These subsidiaries are not large enough to warrant separate planning departments, and group planning, as such, is not done by a separate department. The growth of the group is achieved both by internal growth within subsidiaries and acquisitions which are planned by the holding company.

Long-range planning in a life assurance concern is described as relating mainly to their marketing operations. However, the firm is about to reorganise its planning function.

A larger firm belonging to the group of beverages and hotels, reports that they are engaged in short-, medium- and long-term planning in all their functional departments and that these plans are regularly revised to determine whether internal and/or environmental changes necessitate adjustments of their plans. Basically, each department is responsible for its

A large group of motor vehicle retailers uses budget committees in its subsidiaries and, at the moment, plans only one year ahead. However, they intend to introduce a five-year plan once budgetary control functions satisfactorily.

The following case illustrates the approach to long-range planning by a large motor vehicle manufacturer : "The corporate long-range objective is developed by the company within the constraints of the parent company's overall group planning. This becomes the basis for our company's objectives and planning of the individual segments of the organisation, e.g. sales, production, finance, etc. These plans are coordinated by the Executive Committee of the Board."

A manufacturer of paper and board, which also distributes printing machines and sundries, reports : "In a manufacturing organisation where plant is a vital consideration, long-range planning is essential. We find our planning must encompass little more than the creation of new branches and the provision of suitable buildings. Of the need for this we have ample warning and plan accordingly on an ad hoc basis . . ."

A printing and publicity organisation approaches its long-range planning in the following manner : "The Managing Director heads up Corporate Planning with advice and assistance from the Executive Board and both line and staff specialists in Technical Planning on a continuous staff relationship basis, and Managers of Publications and Service Departments on a day-to-day basis."

The result of long-range planning efforts in a large retail chain, specialising in family clothing and food, is a "Senior Management Plan" coordinated by the Board of Directors.

A company engaged in the manufacture of aluminium holloware and pressure cookers accomplishes its long-range planning as part of its annual budgeting. The Chief Executive makes projections covering five years of sales and profits. A similar firm sets monthly, yearly and five-year targets during regular meetings of its four Executive Directors.

A company offering engineering, procurement and construction services, selling mining and chemical plants and distributing industrial goods uses a Senior Executive Committee to do its long-range planning.

A large engineering concern bases its long-range planning, in the first instance, on market research and forecasts. The Top Management then examines the suitability of existing plant and equipment for potential expansion in existing lines and also studies the potential for new products. Appropriate recommendations are then made to the Board of Directors.

A firm specialising in industrial porcelain ware, refractories and similar products reports as follows : "We use budgeting techniques and over the past few years we have achieved a considerable degree of sophistication and success with this form of planning and control. We are now at the stage where we must think longer terms is possible, and tentative discussions have been held among senior administrative management regarding the setting of a corporate planning division."

As the above report indicates, this company was more involved in short-term planning and control than in developing long-term plans. All planning has been carried out by its financial administration staff in conjunction with the managing directors, the Board and also outside consultants, such as merchant banks.

A company producing bolts, nuts, rivets and similar items,approaches its long-range planning by means of the following steps : "(1) Formulation of assumptions and objectives; (2) Sales forecast; (3) Comparison of demand with plant capacity; (4) Determination of capital requirements; (5) Elaboration of detailed budgets; (6) Determination of specific objectives."

Another major chain store, retailing clothing and jewellery, has a Group Financial Department (under the control of the Operational Finance Director) responsible for the following planning activity covering 1 - 3 year planning period : (1) Financial Planning; (2) Coordination of Budgeting; (3) Evaluation of results; (4) Evaluation of budgets; (5) Evaluation of controls; (6) Projection of long-range profitability; (7) Reporting to the Board of Directors.

The following report illustrates the approach to long-range planning by a company farming about 11 000 ha on the Natal South Coast and having two sugar mills : "From a planning standpoint, the company looks very largely to the South African Sugar Association, which has a Planning and Development Committee comprised of sugar millers and cane growers, and which is responsible for long-range planning within the South African sugar industry. This committee not only projects estimated

short-to-medium term but has also undertaken extensive studies into the long-term outlook for increasing sugar production in the country. Our planning function as a company is, therefore,somewhat of a secondary nature. As the marketing function is handled by the industry's agents in the domestic market and by the South African Sugar Association in the export market their long-range estimates of demand for sugar is monitored and related to production potential of the S.A.S.A. Planning and Development Committee."

13.20 Planning Committees

A small number of companies (eight in all) without long-range planning staffs have assigned planning responsibility to their Executive or Management Committees.

Some of these Committees prepare the plans, which are then reviewed and revised by senior officers, including the chief executive with the final approval by the Board of Directors.

In the above instances, their activities are directed towards the accumulation of information and assignment of special study groups to identify and organise available data in the operations of the firm and its position in its industry.

The use of planning committees does not seem to be limited to some specific industries and the summary below shows that this planning approach is fairly wide-spread through the economy :

1 Building Society - Management Committee

1 Firm of the building and allied industries sector - Advisory Committee of the Chief Executive

1 Car manufacturing firm - the Executive Committee of the Board

1 Motor and transport firm - Board Finance Sub-Committee

1 Metal closures and plastic ware manufacturer - Management Committee

1 Publishing and printing company - Planning Advisory Committee

1 Firm of the tobacco and match sector - Group Strategy Planning Team

The use of committees can mean, however, one of two things :

(1) Either the firms using this approach attempt to achieve a greater participation in the planning process by all senior managers involved; or

(2) They may not consider planning as a continuing activity requiring a specialist unit but rather as irregular ad hoc activity.

13.21 Use of Outside Consultants

Only two participating firms reported using outside consultants. Both firms use consultants in an advisory capacity and they were not involved in the planning process itself. The first firm, a large retail chain, used a firm of management consultants, and introduced long-range planning as a result. The second firm, a large industrial company manufacturing refractories, glazed bricks and tiles and industrial

and electrical porcelain ware, consulted a merchant bank to obtain some advice on planning.

14. HOW PLANNING EFFORTS ARE PLANNED AND ORGANISED BY SOUTH AFRICAN FIRMS

14.1 Involvement of the Chief Executive

The first stage of our analysis of South African planning companies has given us an insight into their characteristics, and into the function and composition of their special planning units. It has also illustrated different approaches to formal, long-range planning by South African firms that do not have special planning units or departments. The formulated subhypotheses have also been tested and found valid.

The second stage will cover the individual planning steps practiced by South African planning companies, and the findings will be tested against our main hypothesis, based on our survey of literature, which has resulted in the following conclusion, namely that business planning situations may be diverse, and may vary according to the size, complexity and kind of the firm being planned for, the managerial level at which planning is carried out, and the kind of plans being developed.

The individual planning steps have been summarised in section 13.2. The first step involves planning and organising of planning efforts and within its context, the first question concerns the involvement of the chief executive in the planning process. The analysis of answers received reveals that in 58 of the 79 firms that have completed the questionnaire, the chief executives coordinate the planning efforts and attempt to overcome any managerial resistance by issuing a statement to everybody concerned explaining what the planning effort is to accomplish and what uses the plan

will serve. These firms also report that the chief executives give support to line management and obtain from line managers their suggestions and proposals. Thus they ensure effective commitment to the planning process. These answers clearly indicate the fact that the chief executives realise fully that without their personal involvement and interest there cannot be successful planning. Only in this way can they create a climate that is favourable to planning by developing the enthusiasm of line managers and guaranteeing acceptance of planning.

Of the 79 participating firms, 22 firms, or 27,8%, do not observe this rule. Three firms did not reply to this question.Do the characteristics of specific industries favour the chief executives' involvement in some firms rather than in others? The answer is, "no", because these firms belong to a wide variety of industrial groups. Analysed individually, the main reason for not giving an answer to this question is due most probably to small sizes and specific authoritarian management styles. The three firms that did not reply to the question are small in size and interpret planning as budgeting.

14.2 Staff Assistance and Facilities

Adequate planning by line managers can take place only if it is facilitated, supported, coordinated and encouraged by top management. The extent of staff assistance and the range of facilities employed depends necessarily on the organisational complexity (size, type and degree of vertical integration) and on the technological status of the firm.

To illustrate the varying character of assistance and facilities, we shall offer examples of how different firms approach the first planning step, and then pass comments on possible industrial similarities or differences.

One bank reports that its planning department staff assist all other departments in the development of plans. Another bank states : "Planning commences in our organisation with a detailed research which, together with a variety of other information, is digested and made available to line."

In one coal mining company staff assistance and facilities are provided in the form of specialised services offered either by its own staff or its headquarter's specialists.

You do it!

Compare this case with the staff assistance and facilities offered by a diamond mine which makes available to line managers : (1) Computer services - EDP; (2) Accounting and cost information; (3) Service of estimators or of project analysts; (4) Services of the mine and engineering planning units.

A manganese mine seeks to achieve a similar service through the exchange of views during its monthly two-day meetings between the executives and line management.

A conglomerate whose activities cover most sections of the economy, guides, persuades and provides assistance to line management in any problem area through its Planning Unit, inclusive of concepts and computer models.

A holding company with varied activities, ranging from

the manufacture of footware and luggage, to shipping, transport, hotels and tourism, carries out the supporting and facilitating task through specific instructions and assistance from the Head Office, its Finance Division and its Divisional Managing Directors.

Financial Managers, assisted by Group Personnel Managers are the sole source of help and encouragement offered by a firm manufacturing plywood and allied products, whereas manufacturers of glass and fibreglass assist their planning line managers through Branch Managers' meetings, held at Regional level.

A firm belonging to the building and allied industries sector regards the assistance of a marketing specialist and an engineer as sufficient.

A firm specialising in plastics, fertilisers and animal feeds would, obviously, require more assistance from technical specialists than from other services, though this firm offers assistance from its Management Service Department too, to its line managers when engaging in planning activities.

In a firm in the clothing and knitwear sector line managers engaged in planning are offered assistance in the form of weekly formal management meetings.

Computerised sales analyses (in considerable detail) are the only assistance provided to line management by a manufacturer of household articles. In the case of a furniture chain, the only guidance and help comes from the group management accountant.

A firm manufacturing electrical transformers and relays

makes available to its planning line managers, the facilities of its accounting and data processing departments.

Compare the following case. A large organisation which, during the last few years, has grown very rapidly through acquisitions and mergers, does not yet offer any assistance or facilities to its line managers in their planning efforts, but will, in the very near future, offer the assistance of the Group Management Information Services and Data Processing Centre.

A full range of assistance and facilities, embracing financial, personnel, market and industry research, statistical analysis and planning guidance, is offered to the planning line managers of a large firm specialising in steel, copper and iron pipes and fittings, pumps, diesel engines, mine machinery and equipment and similar products.

A major manufacturer of motor vehicles reports : "The staff functions of the organisation individually or collectively provide appropriate historical and forecast data as well as technological information to assist line managers in planning (e.g. environmental data, finance and market data, technical development)."

Advice from Specialists Managers - technical, financial, circulation and marketing - is offered to line management by a large printing and publishing company. The Group Financial Department's studies and statistics, computerised pro-forma plan, computerised budgets and projections form the basis of assistance offered to its line managers by a large chain retailing clothing and jewellery.

The staff assistance and facilities offered to planning line managers may also take the form of training by head office staff managers or of seminars, as reported by a firm operating in many sectors of the economy, such as agriculture, paper, sugar, timber and so forth.

An oil company has a specialist planning unit in each function responsible to top line managers. The firm also provides operations research facilities.

In many firms the financial or budgeting departments seem to provide the only assistance to line managers in their planning efforts, while 23 participants do not offer any kind of assistance or facilities to support, coordinate and encourage adequate planning by line managers.

The above detailed analysis shows quite clearly the fact that the greater the size and the technological emphasis, the greater assistance and the more facilities are offered. The degree of sophistication of this help increases proportionately both with the size of the firm and with the technical complexities. Financial opportunity also plays an important role.

This can be illustrated, for example, with gold and manganese mines that offer only moral support and encouragement. Yet in the same group, the diamond mines offer every modern sophisticated aid to help line managers in planning. Why? Financial opportunity is probably the most plausible answer as money can be spent on means and ways to improve the efficiency of line managers in planning.

A large financial holding company with industrial investments offers another example of the trend just described, in that it offers only financial advice, whereas a large conglomerate (a holding company whose activities cover the whole spectrum of the economy), offers the widest possible assistance, including conceptual and computer models, because of the organisational and technological complexities involved. One oil company adds to the range of facilities mentioned above the help of its operational research department.

Similarly, a large chain retailing clothing and jewellery offers extensive assistance and facilities to its line managers dictated by the size and type of its organisation.

In firms of all industrial groups where the above two factors are not at work, the assistance and facilities provided to their line managers take the form of financial advice only. 29,1% (23 firms) of all participants do not offer any help to their line managers. The reasons may be threefold : small and simple organisational form, lack of technical involvement and lack of managerial skills.

14.3 Elaboration of Specific Implementation Plans by Operating Managers, and Balance Between Line - Staff Participation in Implementation Planning

Before attempting the analysis of our findings on the above aspect of the first planning step, one important consideration must be taken into account, i.e. the present generation of South African executives are line officers by training and temperament and they view with suspicion and alarm the 'dreamers', as they

call the long-range planners. Until fairly recently, formalised, long-range planning was foreign to most South African companies. Only now is it slowly becoming legitimised as a function of management and this transition is being made possible through the development and adoption of new techniques of economic forecasting, statistical analysis and operations and marketing research. It is quite natural that operating managers, who up to fairly recently, managed by intuition, are uncomfortable with new techniques, and very often unwilling to admit that these new techniques work. Furthermore, they are finding themselves surrounded by an increasing number of staff officers, and so feel hampered by staff decisions in areas of their traditional freedom. They obviously have the justifiable impression that they are no longer at the controls.

To reach corporate objectives, detailed plans are developed in addition to making overall strategic plans. These detailed plans are designed to carry out or 'implement' the corporate strategy. For these reasons they are often called 'implementation' or 'functional', 'tactical' or 'operational' plans. Implementation planning includes preparing individual staff and operating plans as well as coordinating and summarising these plans and their budgets within the overall strategic plans.

While a large amount of implementation planning is done at the individual operating and staff management levels, implementation planning and overall strategic planning are in practice closely related. Implementation planning starts generally with the marketing operations and for this reason marketing plans

are normally the basis of other company implementation plans, such as manufacturing, finance, organisation and information and control systems.

In addition, implementation planning deals with the cost of all planning steps. In general, implementation planning must, therefore, be developed by almost any level of management, but the nature of the implementation plans developed for each operating or staff area will vary in scope and importance.

Nevertheless, although the staff develops an overall long-range plan which would shape the company's future, the attainment of the plan is not possible without the cooperation of line managers. Thus, if this is to be realised, operating managers must be made fully responsible for the creation and elaboration of implementation plans. The first requirement for the achievement of the plan, if not a sine qua non condition, is, therefore, to maintain a balance in the restructuring of the firm when attempts to formalise its long-range planning are made.

Let us look at our findings concerning the extent that the South African firms realise that operating managers must be involved in the elaboration and creation of specific implementation plans as explained above.

A large bank, a coal mine, a diamond mine, a large financial group with industrial investments, a conglomerate with divisions operating in many fields of the economy, a firm manufacturing asbestos cement, a clothing manufacturer and a large group retailing furniture have answered our question, "Do the operating managers elaborate specific implementation

plans with the assistance of the staff or of the top management?", by a simple "yes" without offering any supplementary information.

Those companies that have answered the question in the negative belong to the following groups : a large conglomerate (with divisions of earthmoving machinery, timber, building supplies, motor vehicles, mechanical handling equipment, electrical and similar equipment), a large clothing manufacturer, a manufacturer of leather goods and a chemical company. Their negative answers were without explanation.

The answers that were more explicit on this planning aspect are analysed below :

A large international bank reports : "Each objective is supported by specific action plans to accomplish that objective together with a deadline and an assignment of responsibility."

A diamond mine explains that their planning unit provides overall plans and that the operating managers elaborate and extrapolate these plans into the desired details. It offers one example : a stopping schedule and a diagram, provided by the planning unit, is detailed and implemented by the operating manager.

A gold mine describes this planning step in the following terms : "Production plans are revised monthly and checked against the proposals in the long-term plan", whereas a manganese mine's answer reads as follows : "Detailed production planning follows from sales commitments."

A firm operating in timber, plywood and related products states : "Capital proposals are drawn up based on marketing, production and financial analysis." But a firm specialising in gypsum products reports : "Operating managers in marketing, manufacturing and financial sections elaborated implementation plans with the assistance of the chief executive."

In a major chemical company only some implementation plans are elaborated by the operating managers, while another firm operating in the same field states : "Branch managers discuss sales plans with marketing and commercial managers and directors." For a manufacturer of aluminium ware, annual budgeting means elaborating specific implementation plans.

The answers of firms belonging to the iron, steel, engineering and electrical group vary from "some do" to statements such as "operating companies report progress quarterly on their Plan's Specific Objectives"; or "detailed Department Budgets for subsections and cost elements"; or "no, with assistance of top management" and "only for special projects"; or "straightforward marketing, production and personnel action plans are handled by them (operating managers)" and "critical performance areas are defined and a deficiency analysis prepared, when line managers are then set specific objectives to eliminate the deficiencies".

Only very few firms (a firm manufacturing underground cables, an industrial conglomerate and all participating oil companies) give answers describing the implementation planning as defined in our introductory notes, thus

confirming that they have reached relative maturity in their planning activities.

Table 10 shows that 48 firms out of the 79 participants report applying the described planning step, while 21 companies, or nearly one-third of all participating firms, do not seem to realise the importance of implementation planning being carried out by operating managers. Similarities and/or differences between the individual industrial groups could, however, not be traced as the firms not applying this planning step belong to all industrial groups. However, those firms that report the practising of this planning step seem to be influenced by factors such as financial risk and opportunity. Indeed, they are found among banks, gold mines, building and allied industries, motor and transport firms, paper and pulp manufacturers, stores and oil companies.

14.4 Planning Step No. 1 : Planning and Organisation of Planning Efforts by South African Firms - Validity of Our Assumptions

The validity of our major hypothesis that South African firms apply to their formal, long-range planning the same conceptual planning model as outlined in section 13.2 can now be partly tested. If they do, they would then use all of its steps. The first step was covered in our questionnaire by questions that are detailed below. If the majority of South African firms participating in our survey reply affirmatively to the individual questions, then this will be taken as evidence that our hypothesis holds good as far as the first planning step is concerned. The summary below offers the following overview :

Questions of the Questionnaire	Positive Answers (100% = 79 Participating Firms)
1. Does your chief officer specifically define what the planning effort is to accomplish and what uses the plan will serve? (Table 10A)	75,9%
2. Is this statement communicated to everyone affected by planning? (Table 10B)	70,8%
3. What staff assistance and facilities are provided to support, coordinate and encourage adequate planning by line managers? (Table 10C)	69,7%
4. Do the operating managers elaborate specific implementation plans with the assistance of the top management? (Table 10D)	60,8%
5. Is the balance between the line and staff participation and responsibility maintained, and the line responsibility for profit recognised? (Table 11)	77,2%

Although the above answers undoubtedly confirm the evidence for the validity of our assumption on the first planning step, some clarification is needed. The number of affirmative answers to question 4 seems to be substantially lower than to other questions. This difference can be explained by the fact that the headquarters of the participating conglomerates and some multiplant and multidivisional firms cannot show the involvement of line managers in the elaboration of implementation plans, because they are only concerned with the creation of an overall long-range plan and the implementation planning then takes place at divisional or subsidiary levels. The remaining percentages concern firms with a low level of the planning art or a lack of interest in our survey (no answers).

15. PLANNING PREMISES

15.1 How Planning Premises are Defined

The second planning step of the universally applied conceptual planning model is the definition of planning premises. The study of literature has brought up the definition of planning premises as "future conditions against which all planning takes place". These premises usually take the form of forecasts and policies essential to the plan's success. The importance of writing down these assumptions is emphasised because unless they are committed to paper, no written plan can be successfully elaborated.

All forecasts naturally deal with the future, but only too often managers interpret them very narrowly. The literature stresses the fact that forecasts should be more than forecasts of population, prices, costs, production, markets and similar matters; they should also cover matters such as rates of wages, tax rates and policies, dividend policies and so forth.

Planning assumptions or premises could be divided into three broad groups :

(1) Planning premises over which planners have no control, such as political environment, population growth, future price levels, business cycles, fiscal and monetary policies and so forth.

(2) Planning premises which the firm can, to some extent influence, such as share of the market, productivity, labour turnover, company's price policy, etc.

(3) Planning premises fully controllable by the firm, such as policy matters (statements of general philosophy or general aims), programmes (research programmes, expansion programmes into new markets, programmes for development of new products, and so on).

However, firms have to realise that all past plans tend automatically to become planning premises too. If planning premises are not correctly coordinated, successful planning cannot result and unnecessary costs will be incurred. Top management must, therefore, make sure that all involved in planning understand all premises upon which plans will be based. Obviously all major premises must be studied very carefully and very often extensive market or economic research must be undertaken in order to establish the environment and to make managerial decision-making in the planning process effective.

No chief executive can allow his managers to undertake uncoordinated planning based on different sets of planning assumptions. Only premises committed to paper in clear, understandable and unequivocal terms can lead to successful planning.

A few examples below illustrate how this discipline is observed among South African planning firms. Table 12 gives a full account of what firms do in this respect.

A diamond mine reports on this aspect as follows : "Planning meetings take cognisance of policy and record assumptions, premises and decisions". A company specialising in steel sections and castings and aluminium conductors states that all assumptions are

A company with four operating divisions, engaged in activities which cover various economic sectors such as welding products, catering equipment, mining and electrical supplies and surgical and hospital equipment- reports : "This was not so in the early days and there is room for improvement."

The analysis of our findings in Table 12 again highlights a set of key factors compelling some firms to pay greater attention to the definition of planning premises than others. The influence of financial risk and opportunity is evident in the group of banks and building societies, diamond, gold and other mineral mines, financial houses with industrial investments and building and allied industries.

On the other hand, the chemical sector seems to pay relatively little attention to this aspect of planning, but the key factors given above can again be traced in the clothing and knitwear sector, usually unresponsive to other planning requirements - obviously a result of the impact of fashion on future sales and profits. The same applied to the furniture and household appliances sector which must know future economic and social conditions because of the major significance of cyclical patterns of income on the demand for consumer durables.

As far as the group of firms in the iron, steel, engineering and electrical sector is concerned, its keen interest in planning premises could be interpreted as dictated by both financial risk and opportunity and by the rate of technological change. The interest in planning premises of the paper and pulp, sugar, match, oil and motor and transport industries and of the stores sector could have been motivated chiefly through

the influence of the financial risk and opportunity. The printing and publishing sector shows, on the other hand, only a relatively small interest in the definition of planning premises and this could be due to jobbing rather than predictable flow production.

15.2 How Individuals are Assigned Action Steps to be Accomplished within a Given Time-Table

The answers received (of which some examples are given below) suggest that not a single firm has considered the need to give line managers sufficient time if they are to plan effectively. No-one can expect efficient and effective planning from them if they are to carry it out in addition to their full load of regular operating duties. They must be relieved of some of their normal duties if they are to carry out planning functions within a specified time-table.

Examples cited below show the varied interpretations of the above topic.

A bank states that : "Comprehensive Planning Timetable is prepared at the commencement of each planning cycle". A building society reports that : "Annual planning cycle requires information to be submitted by specific dates" and a diamond mine reports that : "All plans programmed and scheduled are accepted as specific objectives which individuals are committed to achieve".

According to a statement by a gold mine, action steps are assigned to individuals and are incorporated into monthly planning on achievement of targets as well as the future monthly target. Specifying deadlines for delivery and shipping dates means, to a manganese mine,

that steps are assigned to individuals to take action within a time-table of accomplishment. A producer of gypsum reports : "Managers are responsible for compiling plans after discussions with their key staff and made responsible until completion of each project". For a chemical company this means setting sales targets and objectives for managers and sales representatives and monitoring their progress. Another chemical firm states that the executives in charge of departments have to submit their estimates within a definite period.

The following statement comes from a large industrial organisation : "A planning programme is issued to all chief executives of operating companies for both strategic planning and budgeting and financial planning with completion dates". A company manufacturing and selling steel tubes, pipes, fittings, copper tubes, plastic pipes, windmills, centrifugal pumps, borehole pumps, diesel engines and similar lines writes : "The formally presented plans only require a statement of objectives and a forecast of results. The detailed programme and schedule is not presented, although it must, obviously, be prepared and adhered to by the responsible line manager", and a firm which offers its services to aviation reports as follows : "The whole is broken down into component sections, viz., administrative structure, capital requirements, equipment costs, marketing. Duties are allocated to separate individuals in specified fixed time".

A large firm manufacturing motor vehicles reports that the broad action steps involve developing plans for product volume requirements, costs, manpower, facilities and capital which are all established within time limits and limitations of available funds.

suitable plans for his department, as has been stressed in our discussion on implementation planning. Otherwise he cannot understand the role he is expected to play. Participation of all managers in planning is the only way to create the vitally important requirement for success in long-range planning. Appreciation of this imperative requirement is shown by the fact that 66 firms accept the necessity of participation whereas only three firms do not. 11 Companies did not reply to this question as indicated in Table 14.

No specific pattern of similarities or differences between industrial groups exists and all groups clearly recognise the necessity of participation in planning. A negative reply has been given by one coal mine, one firm in the beverages and hotels sector and one firm of the footwear and leather industry.

15.4 Planning Climate

What is meant exactly by a 'planning climate'? It means simply the existence of an attitude within a firm which may or may not be conducive to the development of formalised planning activity. As Steiner puts it, planning is a way of life, a philosophy which requires a specific kind of approach. In this context it can only mean an attitude of mind which wholeheartedly accepts and works constructively for change; a philosophy which focuses solely on the future.

Seen in this light, a company's tradition and the traditional approaches to solving future problems have very little value. This philosophy would probably be best served by a total systems approach which completely

"Critical Path Plan" is the reply received from a firm manufacturing metal enclosures and a large firm engaged in the distribution of newspapers, magazines, books, stationery and electronic machines reports : "Quarterly reports, back reviews are done by PAC (Planning Advisory Committee) and the chief executive officer for annual short-term plan assignments".For a firm belonging to the sugar industry the most urgent faults or threats are defined and action delegated by each division's top executive. The last example is the nearest to the expected reply and is taken from the answer of a holding company with a portfolio of shares spread over many fields of economic activity : "Each issue is described together with recommended action, assigned to individuals with deadlines for completion".

In the light of the above confusion, the summary presented in Table 13 is meaningless and the varied interpretation can mean only that operating managers have to carry out their planning activities in addition to their regular duties, even if the prescribed planning tasks are to be accomplished within a specific time-table.

15.3 Participation in Planning

The need for all levels in a firm to participate in planning has been emphasised by scholars and practitioners alike. A wise chief executive will involve all managers of his company in major planning and will ensure that each of them will be kept currently informed of how all major plans affect his area of authority.

Without such participation no manager can develop

disregards the old approach of functional and specialists' viewpoints to allocation of resources. In the past, functions and segments of the firm were entitled to the same share of the resources in the future as they had had in the past. The new approach requires a much more flexible mental attitude. A sound planning climate, which is completely intangible and yet is recognisable, can be introduced only if the above viewpoint is accepted.

Although South African planning companies have, in 60 cases, replied "yes" to this question, we suggest that their affirmative replies be accepted with some caution. It should be realised that such a climate can only be changed by major events; but such events do not happen every day, and so many executives replying to our question in the affirmative may, in reality, be deceiving themselves (see Table 15).

One may object that it could develop slowly by gradual spread of the planning philosophy from original enthusiasts to all managers. It is the writer's personal view that such is not the case, which the findings of the surveyed literature and his personal experience seem to support.

Let us examine some of the replies and comments received. The following interesting answer describes one company's attempts to create a 'planning climate' : "All line managers have been exposed to management development programmes where the management function of planning, inter alia, has been presented and discussed."

A chemical manufacturing firm also makes an interesting

comment which illustrates its sound appreciation of the problems involved : "It would be presuming too much to think that everyone realises this. Some do, some don't, and there is an attempt to increase the number who do."

Perhaps, of all comments made on this topic, the one below by a large industrial organisation is most appropriate and significant : "Yes, this was one of the first benefits we got from introducing planning."

"Hopefully", remarks a firm manufacturing bolts, nuts, rivets, screws and special fasteners - a realistic comment indeed. Strangely, and fully confirming our cautious interpretation, an oil company, with all its planning experience and sophisticated planning apparatus, declares very frankly : "Not everyone yet - but working towards this end."

15.5 Determination of Key Planning Factors

(a) Analysis of the External Environment

By definition, planning is always concerned with the future. Any plan, to be logically meaningful, must be developed against the background of some estimates of future conditions of the environments in which a firm has to operate. These estimates cannot be expressed clearly and precisely because they are required for so many areas, some of which even defy accurate estimates, and the time period involved makes it often very difficult to determine even the salient characteristics of the future with precision. A systematic approach is, therefore, essential at this stage of the planning process, usually called analysis of the company's external and internal environments.

technological and market environments is obviously not gathered or compiled in ways directly related to his company's activities. The areas in which premises are to be developed must therefore be isolated, and the following questions are generally helpful in identifying the areas of major concern[7]:

(1) What are the essential economic and technical characteristics of the industry in which the company participates?

(2) What trends suggesting future changes in economic and technical characteristics are apparent?

(3) What is the nature of competition both within the industry and across industries?

(4) What are the requirements for success in competition in the company's industry?

(5) Given the technical, economic, social and political developments that most directly apply, what is the range of strategy available to any company and industry?

Comments received from participants on this stage of the planning process are reproduced below :

"Ideally, we like to take all these factors into account. In practice, the factors included vary from plan to plan." (A large bank)

"This colliery, like most other collieries, is part of a large mining group. Marketing is mainly carried out by the Transvaal Coal Owners' Association. The percentage of the market is governed by agreement with

the T.C.O.A. The sales price of coal is controlled by the Government. Most financial planning is carried out by our Head Office." (A colliery)

"These factors /outlook for the industry and the position of the company in the industry/ are taken into consideration in evaluating plans received for investment. As far as the outlook for the economy is concerned this is done at the Group planning level." (An industrial investment group)

Tables 16A and 16B seem to indicate that the majority of South African planning companies do pay attention to this important stage in the planning process and the respective summaries are as follows :

(1) Outlook for the Industry :

From 79 planning companies	100%
57 companies analyse the social environment	72,1%
57 companies analyse the political environment	72,1%
55 companies analyse the technological environment	69,7%
67 companies analyse the economic environment	84,9%

(2) Position of the Company in the Industry

From 79 planning companies	100%
61 companies analyse the market	77,2%
58 companies analyse costs	73,4%
52 companies analyse technological changes in the industry	65,9%
61 companies analyse the competition	77,2%

All industrial groups are equally interested in all aspects of the external analysis.

(b) Internal Analysis - Assessment of the Firm's Internal Strengths and Weaknesses

Internal analysis of a firm means appraisal of how well it is performing its various functions such as marketing, finance, accounting, personnel-labour relationships and operations. Such an analysis is the next step after examining and assessing the environment. It involves an inward look to find out how the relevant company is performing against its environment, and information has to be examined to see where the firm's strengths and weaknesses lie. The process involves evaluation of products, services and functions in relation to the firm's organisational structure and personnel. Costs, products and financial status should be compared with the industry to which the firm belongs, and with past performance.

This appraisal of the firm's performance compared with that of its major competitors as well as with the industry makes possible a diagnosis of problems. Detailed assessment of the firm's performance provides necessary data for the development of its long-range plan.

When a firm carries out its internal appraisal it usually examines in detail :

(1) Financial management policies - financial planning, cost analysis, short- and long-term financing, capital budgeting.

(2) Marketing management policies - market investigations and research, product development, channels of distribution, promotion.

(3) Manufacturing management policies - purchasing, product design, inventory control, production planning and scheduling, control of quantity and quality, research and development.

(4) Managerial accounting policies - auditing, cost accounting, accounting plans, taxation policy.

(5) Personnel management policies - selection, hiring, training, development of personnel, appraisal and promotion, compensation, benefits, collective bargaining.

(6) General management policies - definition of objectives and goals, long-range planning and strategies, organisation and implementation of plans, control and evaluation of long-range plans, quality and continuity of leadership.

Table 17 offers an overview of how well this important planning step is performed by South African planning companies. The majority seems to realise that this analysis is an essential stage of the planning process, but no comments were made offering details. All industrial groups seem to be performing this function with equal interest. Manufacturing policies are, obviously, elaborated only by manufacturing concerns, which explains the low figure of 47 in the summary in Table 17.

15.6 How Technological, Economic, Industrial and Sales Forecasts are Made

Whatever conclusions are drawn from the analysis of external factors, they must be modified by the planner's findings on (i) what his company can realistically do; and (ii) what the owners wish to do.

A company's planning is influenced as much by objectives and internal strengths/weaknesses as it is by external environmental influences and considerations. Sound management planning must be based, therefore, on forecasts of both internal and external factors which will influence the firm's performance in its environment - the sales of goods or services. The sales forecast thus becomes the basis on which all company plans are built. Marketing, production, manpower, financial and other operating plans are based on this forecast, as is overall company profit planning.

Whenever possible, external economic, industry and market forecasts should be made to arrive at the estimate of the sales a company should achieve under a specific set of likely circumstances. This forecast should then be adjusted on the basis of information obtained from operating managers, salesmen and other sources.

The summary below shows the extent of the forecasts developed by South African planning companies. Table 18 gives further details.

From 79 companies reporting	100%
33 companies develop technological forecasts	41,8%
48 companies develop economic forecasts	60,8%
51 companies develop industrial forecasts	64,6%
63 companies develop sales forecasts	79,7%

Some explanatory comments made on this topic by some respondents will now be quoted below :

One colliery has already reported in its answer to matters pertaining to the external and internal analyses that, since it is part of a large mining group, forecasting is carried out for it by its trade association. No details were offered.

A gold mine explains the reasons for not establishing industry and sales forecasts as follows : "Not applicable due to perfect market but forecasts are reviewed with changes in the price of gold as this affects policy. The industry and sales forecasts are replaced through a feedback via Chamber reports."

An industrial holding company reports as follows : "Forecasts are done by divisional company managers who will prepare and execute their plans. Only the economy as a whole can be analysed effectively by a centralised department in the case of this widely diversified group" and a chemical distributing company makes the following comment : "The various factors covered (by technological, economy and industry forecasts) are used in company sales forecasts. We do not produce written technological, economic or industry forecasts in any detail but regularly provide information on these matters to the principals for whom we are selling agents, and forecast the effect they may have on sales."

"Technological forecast is difficult to determine. Economy forecast unlikely to have any serious effect on forecast" reports a clothing company, and a leather manufacturing firm offers the following reasons for not establishing forecasts : "The managing director considers the above factors on a broad scale before making a plan - not each one separately."

A large industrial multiplant company states simply (regarding the technological and economy forecasts) : "We have not yet reached that level of sophistication." The following complaint, presented as a comment by a large firm manufacturing metal and plastic containers, is significant : "Lack of information on position in industry" and, finally, this last comment comes from a large retailing chain store : "Forecasts are tremendous assistance in budgeting control."

Table 18 indicates the variation in the approach to different kinds of forecasts by South African firms. There is one forecast which is prepared by the vast majority of all participants, and this is the sales forecast, although there are eight companies (in the building and allied industries, in the footwear and leather industry and an engineering firm) that do not prepare any forecasts. In all these cases their small size explains their lack of interest in this important function, although these firms call themselves 'planning companies'. The extent to which coal, diamond and gold mines undertake forecasts has been explained by their comments.

As far as technological forecasting is concerned, the small number of firms - 33 in all - carrying out this function belong to sectors depending on innovation in technology, be it for the improvement of their products or services or for their manufacturing process to remain competitive. These firms are found in the mining sector, the building and allied industries, the chemical, iron, steel, engineering and electrical, paper and pulp and sugar sectors although such sectors as printing and publishing, stores and tobacco and match and shipping have firms which also prepare their technological forecasts.

A similar pattern of interest can be traced in the establishment of the economy and industry forecasts. All these forecasts require special skills and are costly and will therefore be found, as the analysis shows, only in firms of great organisational and technological complexity. In all these instances, financial risk and opportunity also exert some influence.

15.7 Planning and Importance of Premises for Developing Implementation Plans

The importance of this stage in the planning process seems to be recognised by many South African firms as shown by the summary of our findings set out in Table 19, which covers the following three aspects of the second step of the planning process :

(1) Premises for developing implementation plans are planned.

(2) It is realised that a large number of lower level managers' planning premises come from the overall strategic plan and that each level of plans becomes the framework upon which the next level of planning is based.

(3) The importance of planning premises is realised, and everyone involved in the planning process understands what plans should be developed as based on the planning premises.

Our study of literature on planning and of planning practices have shown that these steps mean :

(1) That the lower the level of planning, the less

concerned the planner is with broad environmental premises. A marketing manager, for example, will naturally be affected in his operations by overall environmental economic factors, but his immediate plans may be affected more by specific trends such as the plans of his major customers. In consequence he will have to develop many planning premises which are relevant mainly to his operations on which he will base his plans and their implementation.

(2) That his planning premises will, therefore, be a combination of those coming from the next level of planning, and of those coming from other firm's areas of planning which affect his operations. To these premises he has to add information developed by him and relating either to his specific function, market or internal resources.

(3) That this manager realises that the premising stage of planning is a very important planning step during which he will not only specify those factors which limit his plan but he would also search for new ideas, for new areas of expansion and his company strengths on which he can build his plan. Realising the importance of planning premises he then understands what kind of plans should be elaborated and implemented.

However, some South African planners do not understand fully the meaning of this stage, as two of their comments below indicate.

A financial house with industrial investments makes the following statement : "There is no formal statement of this kind but it is implicit in the way planning is done" and a very large conglomerate comments : "All

levels of management are not yet familiar with importance of planning - further training is necessary."

A detailed analysis of our findings highlights some interesting facts. For example, regarding planning of premises for the development of implementation plans, 23 firms in all sectors of the economy, do not realise the importance of this stage in the planning process. We wish to emphasise the fact that lack of understanding of the implication of this step is spread throughout industry. Identical patterns are found in respect of the two other aspects of planning, namely, (a) recognition of the hierarchical nature of planning and (b) of the importance of planning premises on which plans should be based. This gap in understanding may be due to one factor only - lack of planning skills.

15.8 Development and Evaluation of Alternative Directions

The questions covering this last aspect of the second planning step were :

(1) In the light of the planning premises, do you develop and evaluate alternative directions that your organisation may follow?

(2) Based on this evaluation, do you select corporate objectives?

Our findings indicate that, on the whole, the South African planning firms are aware of the fact that (a) there is seldom a business plan for which reasonable alternatives do not exist; (b) that many clues to the overall direction a firm may choose can be found while analysing planning premises, and (c) that such an

analysis often uncovers factors not only constraining a company's plans, but also leading to the discovery of new opportunities, and thus suggesting new ways of growth. They are aware of the fact that before a corporate objective can be developed and established this analysis must be carried out.

However, there are still some firms that do not fully appreciate the necessity of developing and evaluating alternative directions as Table 20 shows. The first question was answered affirmatively by 55 firms, while the second has brought only 47 affirmative answers from the 79 participating firms. Below are some examples of comments made to the above questions by a few respondents :

"In so far as demands of the market and technology dictate" is the remark made to the first question by a diamond mine, and the following comment, made by a large conglomerate, concerns the second question : "This is done at divisional but not group levels".

As far as the development and evaluation of alternative directions are concerned, one firm which distributes chemicals, writes the following : "Within narrow limits. Most of our business is selling imported products and 'alternative directions' do not really apply. The alternative are restricted to development or cession of business areas or forecast viability". The first question is answered as follows by a large industrial organisation concerned with many activities : "No. Based on top-down stakeholders expectation analysis vs bottom-up projections". Another answer to the first question comes from a conglomerate and reads : "But only recently".

In response to the second question, a large firm which manufactures motor vehicles states : "Corporate objectives are influenced by the evaluation of alternatives". The second question attracts the following remark from a large chain store that retails clothing and jewellery : "Yes, but rather a chicken and egg situation". The last comment invited by the second question reads : "But not in great detail - this will be improved" and comes from a sugar producing firm.

What are we to make of these comments? The first aspect - the development and evaluation of alternative directions in the light of planning premises - has been answered affirmatively by 69,1% of all participants who belong to all industrial groups. No specific inter-industry similarities or differences could be traced. Those firms, for example, that have answered this question in the negative are as follows :

Sector	Number of Companies
Coal mining	1
Gold mining	1
Beverages & hotels	1
Building & allied industries	1
Clothing & knitwear	2
Iron, steel, engineering & electrical	3
Motor & transport	2
Printing & publishing	1
Stores	1

Most of these firms, with the exception of conglomerates (1 in the beverages and hotels sector, 3 in the iron, steel, engineering and electrical sector and 1 in the printing and publishing group), are small in size and simple in structure. The comments passed on the above

interpreted as strong evidence in favour of our hypothesis.

Questions from Questionnaire	Positive Answers (100% = 79 Participating Firms)
6. Are all assumptions upon which the plan is based, and the specific policies which are essential to the plan's success, written down instead of merely presenting forecasts and budgets as the final plan?	67,1%
7. Are action steps assigned to individuals within a timetable of accomplishment? (Table 13)	67,1%
8. Do those who will be carrying out the plan participate in the planning process, so as to better understand what the plan is, and what it is designed to achieve? (Table 14)	83,6%
9. Does everyone involved in planning realise that the act of planning is often as important as the actual plan produced because it focuses the attention of line management in the future, improves coordination, and provides a measure of achievement? (Table 15)	75,9%
10. Do you determine the key factors which will have a major influence on planning through a study of the following factors : (Tables 16A, 16B & 17)	
(1) External environment :	
(A) Outlook for the industry :	
(a) Social influences?	72,1%
(b) Political considerations?	72,1%
(c) Technological influences?	69,7%
(d) Economic considerations?	84,9%
(B) Position of the company in the industry	
(a) Market position?	77,2%
(b) Cost position?	73,4%
(c) Technological position?	65,9%
(d) Competitive position?	77,2%
(2) Internal factors (strengths/weaknesses)	
(a) Financial management policies?	82,3%
(b) Marketing management policies?	75,9%
(c) Manufacturing management policies?	59,4%
(d) Managerial accounting policies?	73,4%
(e) Personnel management policies?	73,4%
(f) General management of the firm?	83,6%

should be compiled and made available.

The second point is that firms do not realise the vital importance of developing and evaluating alternative directions that they may follow. In neglecting this aspect of the second planning stage they are foregoing opportunities that may suggest new ways of growth; they may even be jeopardising the very survival of their firms.

16. DEVELOPMENT OF OBJECTIVES AND OTHER OVERALL GUIDELINES FOR ACTION

16.1 Company's Guiding Principles - Philosophy

A company's guiding principles are expressed in statements that spell out the basic philosophy of the firm. In some instances[8] companies have found that the basic statement of an objective does not give employees adequate guidance, and that some amplification is needed. They issue, therefore, statements covering the company's objective and principles for guiding action in each of the following groups : shareholders, customers, employees, public, suppliers, competitors, government and industry. However the literature on planning says relatively little on this stage of the planning process.

One can easily conceive that the process of formulating a document containing such guiding principles and so clarifying its future aims for a firm is of great importance and is extremely useful because it emphasises the present and broadly delineates the future situation and position of a firm.

Ideas and people constitute the bases around which companies are organised and it can be stated without any exaggeration that companies very often have great difficulties, not so much because of people, but because of the ideas around which these people are organised.

As the findings, summarised in Table 21, show, 67,1% of all participants issue overall statements of their philosophy and purpose. This interesting fact would suggest that South African planning companies were and are

influenced more by planning concepts and practice of American business enterprises than by European approaches. Surveys carried out on this aspect among European companies showed that it was not normal practice to set down general statements of philosophy and purpose in transatlantic fashion[9] whereas this practice is generally accepted in the U.S.A.

A few confirmatory comments made by participants are illustrated below :

"Overall, broad statements are made for every business" (A conglomerate)

"Yes, we state our guiding principles, but not in vague terms" (A chain store retailing clothing)

Compare the following statement with the two above comments : "Not in great details - this will improve" (A sugar company)

Do some firms formulate the company's guiding principles, basic objectives and philosophy more than others because they are influenced by a set of specific factors, inherent in their industrial group? The answer must be "no" as firms that both do and do not formulate such statements belong to all industrial groups covered by the survey. If they do not elaborate then the main reason is undoubtedly their smaller size. However, one oil company, in spite of its organisational complexity and the financial factors involved, does not issue any statements on the company's philosophy. The reason for this is probably that it is a subsidiary of a European concern.

16.2 The Choice of Corporate Objective

One of our participants expressed his astonishment at the many categories of objectives suggested in our questionnaire, by placing a question mark in front of all these classes and writing "profitability" across them all. Undoubtedly, he has effectively made the point that all firms have practically the same objective - to make a profit.

Our study of planning literature and practices indicates that before implementation plans can be developed company objectives and overall policies must be established to give direction to the development of specific operating plans. One should qualify this by adding the objective 'strategic' in order to define the direction the company will follow in its environment by exploiting opportunities and avoiding threats and obstacles.

Following this path, a business firm must certainly seek profit, yet this objective is inadequate in itself because there have been (and there are) many cases of business owners with motives much stronger than profit alone. Incentives such as power, security and public acclaim may be even stronger than profit, which, in such cases, becomes a means to achieve other objectives.

Company executives may also be motivated by other incentives, e.g., by the desire to try out new ideas and develop new techniques, or to beat their competitors Naturally, none of these motives can be realised unless profit is made, but they may well be incompatible with maximisation of profit.

We would, therefore, suggest a different definition of a firm's overall objective : "The overall objective of any company defines the most profitable use of its resources in exploiting the market opportunities over a long period". The formulation of such an objective is, obviously, an integral part of long-range planning.

Objectives can be used either to evaluate and rank alternative courses of action, or as yardsticks against which a company's performance is measured. Finally, they are essential in ensuring consistency of operational decisions within a firm.

Many objectives can, therefore, be determined within a company, but it should be kept in mind that every firm's functional department or division such as marketing, finance, production and personnel, etc., has its own objectives or goals. These objectives or sub-objectives (goals) should support the overall objective and be the means by which this objective (making maximum profit within, obviously, certain limitations), is achieved. Operational planning and development of sectional goals must be based on the overall objective of the firm.

Objectives can be classified by the time-span to which they relate, by their organisational level, and lastly by the function for which they are formulated. The higher the operational level within a company, the longer the time for which plans are made. Overall company objectives thus become long-range objectives; the goals or sub-objectives (sometimes called targets) then relate to lower organisational and functional levels.

Thus the structure of objectives is multi-dimensional and leads, perforce, to conflicts which can only be resolved through trade-offs between objectives. Priorities must be assigned to the various objectives, but one has to realise that different weights (priorities) may and will lead to different choices. Furthermore, these choices must be related to managers' value systems in terms of a 'profile' such as that proposed by W.D. Guth of Columbia University[10], based on six prototypes : economic, political, aesthetic, religious and theoretical man derived from Spranger's work[11]. This classification identifies siz kinds of value orientations. The theoretical man's interests are empirical, critical and rational. The economic man is interested in practical affairs of the business world. He is highly practical and oriented primarily towards what is useful. The aesthetic man finds his chief interest in the artistic aspect of life. He views experience in terms of grace, symmetry, harmony. The essential value for the social man is love of people. He values people as ends, and tends to be kind, sympathetic, unselfish. The political man is characteristically oriented toward power. Most leaders have a high power orientation. The religious man is one whose mental structure is permanently directed to the creation of the highest and absolutely satisfying value experience. The dominant value for him is unity. The role and influence of these values are much in evidence in decision making and serve as the basic ends or goals towards which an executive would like company activity directed.

Against this background, let us now examine how South African planning companies tackle the problem of establishing objectives. For many companies there seems to be only one objective - profitability - as

indicated in our explanatory notes. A number of respondents did not understand the category of objective 'ownership', although the meaning of this objective was fully explained in brackets and read : "Do you select your firm's objectives in one of the following areas? (7) Ownership (limits your firm wants to put on distribution of ownership)".

To choose an objective in the area of social and political responsibility also seemed to some participants a preposterous question as indicated by them either through a question mark or through a remark such as that made by a firm which manufactures electrical accessories and appliances which reads as follows : "We do not understand! We have to follow the country's framework."

These few remarks and question marks would indicate that the formulation and statement of objectives as an integral part of company planning in the sense of our introductory and explanatory notes is not yet fully understood by quite a number of South African planning companies.

The details of these findings can be seen in Table 22. A summary is given below :

From 79 reporting companies the following numbers select objectives in one or more of the following areas :

46	in industrial area	58,1%
55	in market area	69,7%
50	in product/service area	63,3%
46	in custom area	50,8%
40	in functions performed area	56,7%
64	in profitability area	81,0%
26	in ownership area	32,7%
43	in social and political area	54,4%
55	in scope of operations area	69,7%
46	in size area	58,1%

Individual analyses of all areas in which companies may formulate objectives do not reveal any specific interindustry similarities or differences. Those firms that do and those that do not formulate their objectives in all areas classified in our questionnaire represent all industrial groups.

However, in the industrial area, competitive pressure and technological factors combined with financial influences may well play a decisive role in establishing objectives. Stores, operating in specific geographic areas, tend to limit their objectives to these markets. One chain store operating on a nation-wide basis and reporting that it has established its objective in the area of its industry may well have defined this objective on an arbitrary basis.

The conditions prevalent in other areas, with the exception of ownership and social responsibility do not require any special explanation because explanatory notes have already been given when the participants' answers and comments were discussed.

16.3 Developing, Evaluating and Selecting Alternative Objectives

Our findings suggest that the first step in developing a company's overall objective(s) is to determine what aspects of the company's business should be covered by the objective(s). The company's success is almost always affected by four areas, and these should be covered when the objective(s) are stated. These four areas are :

(1) The product or service that will be offered;

(2) The manufacturing and marketing operations that will be performed;

(3) The market or customers that will be served or the industry in which the company will operate;

(4) The expected size, scope and profitability of future operations.

Once the areas to be covered in the firm's objectives have been established, the next step is to develop alternative objectives within each of the major areas selected, based on a study of the external and internal planning premises. By evaluating the interrelationships between each of the major areas and considering the reasonableness of the alternatives, a comprehensive statement of valid alternative overall objectives is developed.

Only a methodical and systematic evaluation of all alternatives will yield the best one. However, before any decision is made, all planning premises should be listed, a wide range of alternative objectives developed, and their advantages and disadvantages determined. This eliminative process yields a restricted number of alternatives which can then still be further refined, and finally the best alternatives selected for each chosen area.

But this process should not end here. Both environments - external and internal - are in constant flux. As they change, the selected objectives may also change, which means that this planning step has to be a continuing process. Periodic reviews are vital, and it is not an exception that such reviews may over a period of 5 years bring about a restatement of a company's overall objectives.

This important planning stage is not fully appreciated by South African planning companies, as the findings in Table 23 indicate. Only about one-third of the participating firms report that they develop alternative objectives, but in many instances give a negative answer to the subquestion which reads : "Do you develop alternative objectives? Within each of the above area selected and based on the study of external and internal planning premises?"

This obviously invalidates the first positive answer, and leads us, perforce, to the above conclusion. Some comments, which are reproduced below clearly indicate that some participants do not clearly understand what is meant by this planning step (and we conclude that their planning art is, therefore, very low).

"Question not understood" (A large industrial group)
"Meaning not clear" (Another industrial group)

This lack of understanding is also confirmed by question marks placed by other participants against this question.

However, there is evidence, on the other hand, that those companies that have reached a high level in the art of planning do fully appreciate the vital importance of this planning stage, as shown by the following remarks :

"Aim to do this" (A large industrial group)
"The problem is to balance conflicting objectives" (An oil company)
"Only recently" (A conglomerate)

Does a detailed analysis of our findings indicate some specific reasons, due to the characteristics of industrial groups, for the non-observance of these rules? No evidence could be found for such reasons. Those firms that do not include the above steps in their planning process are equally spread through the industrial groups. The only valid reason for this shortcoming is that the present level of planning skill is low among these firms. They have introduced formal long-range planning without having in their employ planners with the necessary knowledge or training. This is proved beyond any doubt by comparing comments made on this planning stage by companies having the necessary skills available - oil companies, a subsidiary of an overseas concern and similar firms as illustrated in the above comments.

16.4 Establishment of Goals or Functional Objectives

Every firm has a number of key functions that may include manufacturing (production, operations), marketing, finance, personnel and others.

Once an overall company objective has been established, sub-objectives are usually formulated for the above areas. Each of these sub-objectives, also called goals or targets, have to be attained if the overall company objective is to be achieved.

Generally, these goals are established by the heads of functional areas, as confirmed by a large industrial group where goals are established at divisional levels and, naturally, these targets must be consistent with the overall objective.

the fact that, in the majority of South African planning firms, planning activity is directed by financial executives. The next area to which similar attention is given is marketing for the obvious reason that nearly every firm has to sell products or services. Besides this fact there is definitely the influence of seminars and special courses in marketing, as well as of the much publicised marketing concept. The personnel function, although as important as the other two, receives less attention. The areas of engineering, production and research and development naturally show smaller numbers of participating firms as these functions are limited to industrial organisations.

The fact that conglomerates report that their sub-objectives are developed at divisional and subsidiary levels must also be acknowledged, and this obviously diminishes the number of affirmative answers. Yet, the fact remains unchanged that there are still 10 firms belonging to all industrial groups that do not establish their goals even in the area of finance. On the whole, South African firms show a distinct weakness in this planning stage.

16.5 Planning Step No. 3 : Development of Objectives and Other Overall Guidelines for Action - Validity of Our Assumptions

To test our hypothesis that South African firms also apply this planning stage, we have asked the questions that are found below. The same principle for testing will be applied as in the case of the two preceding steps. If the majority of all participating firms follow the steps as outlined, this is taken as evidence that our hypothesis holds good. To this effect the following summary is offered :

Questions of the Questionnaire	Positive Answers (100% = 79 Participating Firms)
16. Based on this evaluation do you select the corporate objectives? (Table 20)	59,4%
17. Do you state the principles of action, general philosophy and the overall strategy that will guide and control all phases of the plan? (Table 21)	67,1%
18. Do you select your firm's objective(s) in one of the following areas :	
(1) Industry?	58,1%
(2) Market?	69,7%
(3) Product, service offered?	63,3%
(4) Customers?	58,1%
(5) Functions performed?	50,8%
(6) Profitability?	81,0%
(7) Ownership?	32,7%
(8) Social & political responsibilities?	54,4%
(9) Scope of operations (Future geographic growth)?	69,7%
(10) Size? (Table 22)	58,1%
19. Do you develop alternative objectives?	46,8%
Within each of the above areas, selected and based on the study of external and internal planning premises? (Table 23)	37,9%
20. After developing the overall strategic direction for the company, do you establish goals for each of the areas of the company's operations?	
(1) Marketing	73,4%
(2) Engineering	43,0%
(3) Production	59,4%
(4) Research & development	50,8%
(5) Personnel	62,8%
(6) Finance, accounting	77,2%
(7) Other operations	48,1%

On the whole, the above overview seems to offer evidence for the validity of our assumptions but this confirmation must again be made with some

qualification. Although the South African planning companies braodly follow this planning stage, as found in our survey of planning literature and practices, they do not do it to the same depth as our findings indicate that overseas companies do. The various reasons for this failing have been advanced in our analysis above.

17. HOW POLICIES AND OTHER GENERAL GUIDELINES FOR ACTION ARE DEVELOPED

17.1 Developing Policies

The preceding analysis has covered the steps followed by South African planning companies in developing objectives. To achieve the objective, strategic guidelines, called policies, must be elaborated, and the overall objective extended into operational sub-objectives, which are simply the means of carrying out the overall objective.

These are simple definitions, but the practical application of these concepts has been found, in practice, to be fraught with great difficulties. It is not important, however, that precise definitions of the above terms be developed by managers, but it is vitally important that they understand the process of planning, and how different stages interrelate.

To facilitate our analysis of how South African planning firms develop policies that help achieve their overall company objectives, let us consider two definitions of policy found in our study of the literature on planning :

"A policy is a guide for carrying out action. It establishes a specific course of action that has been adopted as expedient in order to govern the operations of an organisation. Thus it expresses the philosophy, principles and purposes of the organisation, as well as its values. A policy is also a declaration of intent about an organisation's obligations and responsibilities. Since it indicates the manner in which the company wants to perform its activities, the

policy states how goals are to be reached."(12)

The second definition reads :

"A policy is basically a statement, either expressed or implied, of those principles and rules that are set up by executive leadership as guides and constraints for the organisation's thought and action. Its principal purpose is to enable executive leadership to relate properly the organisation's work to its objectives."(13)

These two definitions clearly distinguish between policies and objectives; policies are called guidelines for action, whereas objectives are the ends to be achieved by that action. Policies must be set for all levels in a firm, from the highest to the lowest, to allow the executives to lead and guide their firms efficiently. Policies can be divided into two broad classes : (1) general, which are statements of principles that guide the organisation, and, as the classification suggests, these policies are broad and comprehensive and are basic to the direction of the company, deciding, for example, questions such as geographical location, product lines, diversification; and (2) specific. The latter group could be divided into major and minor policies. The major policies serve major functional areas, such as marketing, finance, production and so on (personnel, sales, finance, purchasing) or divisions and subdivisions of a firm. Minor policies are necessary for departments and sections within each major area (hiring, or discharging, employees, vacations, extension of credit to customers, restrictions to inventories, insurances). Because each unit and department has its own objectives, these must, obviously, be kept in mind by executives

formulating policies.

Only 37 firms, or 46,9%, of all reporting companies, express in overall policies the selected alternatives that best fulfil the company objective and still meet market, industry and company criteria. In the majority of firms the responsibility for coordination of these statements rests with the board of directors or chief executives. In seven cases planners are made responsible for this coordination. For a mine, a shipping line and a building society the production manager, the budget controller and the management committee respectively are responsible for this coordination.

Major policies for all major functional areas are established by only 18 companies of the 79 reporting. On the whole the findings, the details of which can be found in Table 25, imply that South African planning firms are not fully aware of the importance of developing policies. Some anomalies could also be detected : a few companies report establishing a policy manual although they do not elaborate policies for individual functional areas.

However, some comments, like the following one, show that the necessary attention is being given to statements of overall policy :

"The answer must be qualified by saying that this aspect is presently being reviewed with a view of further development." (A major manufacturer of motor vehicles)

The importance of establishing policies for major functional areas is, for example, recognised by a motor company in the following statement :

"Still being developed."

The details of how policies are established by South African planning companies will be given in the next section.

Did the above analysis reveal some features that could be explained in terms of specific characteristics inherent to individual industrial groups? It does not appear so. Those firms that do not express selected alternatives in overall policies belong to all industrial groups, and financial or organisational complexities do not seem to be the influencing factors. There is only one conclusion that could be drawn from the examination of our above findings, namely, that South African planning companies have not yet reached the same finesse in this planning stage as has been achieved by overseas firms.

Yet one interesting feature has emerged from this analysis. Although our previous findings on objectives and goals have shown that the great majority of firms are paying great attention to financial aspects, only a few of them (39 in all) attempt to formulate overall guides for attainment of financial objectives and goals. Those firms that do not develop policies for these major areas belong, again, to all industrial groups, but interindustry similarities or differences could not be detected.

The same pattern can be traced in the formulation of policies in the area of marketing. The smaller number of participants replying affirmatively in such areas as production, engineering and research and development can be understood because these areas are found in only manufacturing firms. Yet, even in these areas,

lack of attention to the formulation of policies is obvious. The personnel function shows a similar neglect.

The anomaly found in the affirmative replies regarding the compilation of a policy manual has been mentioned separately.

17.2 Planning Step No. 4 : Development of Policies and Other General Guidelines for Action - Validity of Our Assumptions

This planning stage has been discussed under the headings :

(1) Selected alternatives are expressed in overall policy statements;

(2) Major aspects of company operations are covered by policies;

(3) Establishment of policy manual.

The summary below shows the questions asked and answers received to these individual topics :

Questions of the Questionnaire	Positive Answers (100% = 79 Participating Firms)
21. After developing and evaluating alternative courses of action that will achieve the objective(s), do you express the selected alternatives in overall policies that best fulfill the corporate objective(s), and still meet market, industry and company criteria? (Table 25)	46,8%

Questions of the Questionnaire	Positive Answers (100% = 79 Participating Firms)
23. For what major aspects of each company's operations (e.g. marketing, manufacturing, personnel, etc.) are policies designed in your organisation?	
(1) Marketing	62,0%
(2) Production	49,4%
(3) Engineering	25,3%
(4) Research & development	24,0%
(5) Finance	49,4%
(6) Personnel	54,4%
(Table 25)	
24. Does your firm have a policy manual? (A framework within which many policy statements and their supporting procedures and rules can be organised) (Table 25)	39,2%

How should we interpret the above findings in an attempt to test our respective assumptions? In spite of many failings and shortcomings in this planning stage, it can again be stated that our hypothesis holds partly true because the participating firms adhere in the majority broadly to some steps of this planning stage as outlined in the universally accepted and used conceptual planning model. But their shortcomings in this planning stage are very severe, and will have to be corrected if their planning efforts are to be successful.

18. HOW DETAILED PLANS FOR REACHING CORPORATE OBJECTIVES AND CARRYING OUT THE CORPORATE STRATEGY ARE ELABORATED - DEVELOPING IMPLEMENTATION PLANS

18.1 Operational Planning

In section 14.3 we analysed the staff assistance and help given by top management to operating managers in their efforts to elaborate specific implementation plans. In section 15.7 one supplementary aspect of implementation planning has been analysed - the planning of premises for the development of implementation plans.

This section encompasses the planning stage during which detailed plans (also called implementation, operational, tactical, functional plans) are prepared for individual functions and coordinated within the overall plan. It follows from the preceding analyses that, once the overall, long-term plan is developed, detailed plans must be elaborated for achieving the company's objective(s) and for carrying out the overall plan.

This stage in the planning process is, therefore, called implementation planning. Implementation plans vary for each area in a company depending on the type of operation of the firm, the firm's size, its organisational structure and the knowledge and skills of its executives.

The current plans are normally modelled on past plans, but care must be taken to look beyond them and to remain creative. Using old plans as a basis for increasing sales by a certain percentage or cutting costs by another percentage is obviously not planning. The universally applied conceptual model requires that

in approaching this stage of the planning process, the necessary planning efforts must be defined, key factors identified, goals, derivative strategies, policies, procedures and rules developed, controls established and planning efforts coordinated. The task of coordination and integration requires a considerable amount of additional formal and informal communication to produce an integrated company plan; a systematic and thorough approach is essential if success is to be achieved.

Table 26 illustrates to what extent detailed plans are developed for achieving a corporate objective and for carrying out the overall strategy. In this area, the performance of South African planning companies is low. Only 43 of the 79 participating firms carry out this activity and they belong to a wide spread of industrial groups. Undoubtedly the firm's size and its organisational complexity are the compelling factors. Those firms that do not carry out this planning step are to be found in all industrial groups. Moreover they may not yet feel the need to do so and probably lack the required knowledge and skills.

In regard to the second step (specification of sub-objectives and determination of derivative strategies, policies, procedures and rules) the situation is even worse. This very poor performance over a wide area of industry, can be assigned without doubt to the lack of knowledge and skills of the firms' planning executives.

The analysis of how South African planners develop step by step plans of action in various planning areas is summarised in Table 26A, and their approach to individual areas will be examined below :

(A) Marketing : Only 46 firms (of 79 participants) develop detailed programmes in this area. Those firms that do not carry out this detailed planning are either relatively small or their marketing is planned for them by some head office or holding company (e.g. coal mines, gold mines, diamond mines).

The fact that four of six participating stores do not elaborate detailed marketing programmes is interesting because it is contrary to one's expectations. In the iron, steel, engineering and electrical industries about 25% of participants do not carry out this function, and in motor and transport firms this percentage represents about one-third. The reasons for this shortcoming will be given below.

(B) Products and Service : In this area we find a similar pattern, and this is to be expected. No firm can carry out detailed production planning if a detailed marketing programme has not been carried out to begin with. No interindustry similarities or differences could be detected in this area of planning. The same pattern as above exists for the iron, steel, engineering and electrical and motor and transprot sectors.

(C) Competition : One would again have expected that companies are forced to pay increased attention to this area of planning. Yet our analysis does not confirm this. South African firms pay little attention to this area of planning and their lack of interest is spread throughout all industrial groups. This pattern may be due to the highly beneficial environment in which South African firms still operate or to a special protection they enjoy - oligopoly and monopoly.

(D) Financial Function : A greater interest in detailed planning has been found in this area but only 75% of industrial organisations are drawing up detailed financial plans - the same percentage as observed in the above three areas of planning. The 25% of non-planning firms cover both large and small firms.

(E) Marketing Research

(F) Advertising, Sales Promotion

(G) Sales and Distribution

(H) Marketing Organisation

(I) Marketing Personnel

The overall percentage of all participating firms carrying out detailed planning in the above functions is rather small (from 32 to 42 firms of the 79 participants). The reasons for these shortcomings are the same as above : on the one side a highly benevolent and protective environment, and on the other side, a lack of knowledge and skills of planning executives.

Lack of planning knowledge is again shown by answers and comments relating to questions concerning the coordination and integration of individual operating plans within the overall, comprehensive company plan and the inclusion of a summary of strategic, individual operating and staff plans and budgets in the overall company plan (Table 26D). In our introductory notes to this section we have explained the steps applied by the contemporary planning methodology to the implementation of plans. These steps include, among other activities already described, the determination of sub-objectives, derivative strategies, policies, procedures and rules. Unless these steps

are carried out, no coordination and integration of individual operating plans can take place.

Yet, in spite of these shortcomings and the findings on detailed planning in different planning areas, 61 firms of 79 respondents (Table 26D) state that they carry out the coordination and integration of individual operating plans within the overall comprehensive company plan. Only 29 participants have stated that they formulate the specification of sub-objectives and the determination of derivative strategies, policies, procedures and rules (Table 26) and only 26 firms have stated that they include a summary of strategic, individual operating and staff plans and budgets in their overall company plan. It could be concluded that only a number of firms between the above two figures of 26 and 29 practice implementation of plans as outlined in the conceptual model.

18.2 Outline of 5-Year Overall Company Plan

The final overall company plan is prepared on the basis of this preliminary operating and staff planning, and the budgetary and top management reviews.

The findings of our survey of planning literature and practices indicate that to integrate the planning material into a single plan is by no means a small task. In a large firm it may be an enormous one. Such a plan would include at a minimum a summary of both strategic plans and individual operating and staff plans and budgets. A typical outline of a comprehensive plan as found in the literature[14] has several sections and usually covers the following aspects :

I Business Results Summary : Operations
Business Indices
Marketing
Product
Cost & Productivity
Facilities
Personnel
Product line performance

II Business Environment

III Division Guidelines

IV Most Important Problems & Opportunities

V Business Strategy

VI Major Business Plans & Programmes

VII Business Results

Appendix I Line Analyses & Plans

Appendix II Cost Analyses & Plans

Our analysis shows that only 22 companies were able or willing to outline a comprehensive five-year plan and some examples of their respective approaches are illustrated below. This result clearly confirms our previous statement concerning the implementation planning stage as overall plans can be prepared only on the basis of preliminary line operating and staff planning, as well as budgeting.

Compare the few outlines offered by South African planning companies with the above framework.

Four-year plan elaborated by a sugar company :

(1) Goals and strategies
(2) Capital plans
(3) Marketing plans
(4) Sales and profit plans
(5) Consolidated group plan

Five-year plan prepared by a chemicals manufacturing firm :

Corporate planning manual : Objectives : long- and medium-term

Actions : medium-term five years
short-term two years

Responsibilities for actions

A very large industrial company outlines its comprehensive five-year plan as follows : "We establish objectives as to profit, dividend cover and return on investment. We establish areas in the business in priority of importance where we must succeed in order to attain the above objectives. These areas would include financial, marketing production and personnel matters, and we develop specific objectives covering these Critical Performance Areas, nominating senior personnel and deadline dates for regular monitoring purposes."

Another similar group offers the following approach :

I Group Basic Purpose
II Group Policies
III Assessment of Environmental Factors
IV Group Strengths and Weaknesses
V Group Objectives and Strategies
VI Group Financial Plan and Budget

A five-year plan elaborated by a company manufacturing refractories has the following sections :

(1) Sales Forecast
(2) Plant Capacity
(3) Cash Flow
(4) Product Development
(5) Personnel Development

Compare the following outline of an overall company plan with the above format :

First Schedule : Summarised Profit Statement scheduling the year-by-year expectations of the present business (i.e. present products in present markets using present facilities and resources) and separately identified projects, ending with a summary of the total year-by-year profit expectations of the business.

Second Schedule : Summarised Assets Employed Schedule giving a forecast of the assets to be employed by the present business and the projects as detailed on the previous schedule.

Third Schedule : Assumptions - This schedule describes the assumptions and premises on which the forecasts are based.

Fourth Schedule : Project Plans - A separate statement is completed for each project detailed in the first and second schedules. This statement gives the objectives of the action, the overall time schedule and the assumptions and premises on which this particular statement is based, and then goes on to detail a year-by-year profit and loss statement for the project, fixed and working capital requirements and manpower requirements.

Fifth Schedule : A year-by-year profit and loss statement for the total business, i.e. the present business plus all detailed projects.

Sixth Schedule : A balance sheet giving a year-by-year development of the operation's balance sheet.

Seventh Schedule : A cash flow analysis which forecasts the operation's year-by-year funding requirements.

Eighth Schedule : A manpower statement detailing the operation's expected year-by-year manpower requirements in terms of specified manpower categories.

Nineth Schedule : An analysis of the operation's sales, gross profits, expenses, net profit and current assets in terms of its major product groupings.

This outline has been adopted by a large firm specialising in the manufacture of steel tubes, pipes and fittings and similar products.

A large firm, producing several product lines, with eleven divisions and a very large workforce comments as follows :

"Individual Plans of Each Major Division are not presented to the Parent Company Board.

(1) The individual plans of each division are converted into financial plans, based on the existing investment and other resources available to each division at that time.

(2) Divisional plans are consolidated into a Group Financial plan which shows the estimated growth of the group based on existing resources. A 'momentum' line of future profits is then drawn graphically.

(3) Having evaluated the shareholders expectations of future growth, a profit 'potential' line is shown against the 'momentum' profit line. The 'gap' between the two is then studied and a Group Strategic Plan prepared so that the profit gap may be closed. For example, if the future growth of the Group Profits is R5 million short of expectations (or potential), policies are agreed on (a) how this can be rectified, (b) in which areas future investment of finance or manpower should be directed, (c) how finance can be raised for future investment, (d) when investment decisions have to be taken,(e) who will be responsible for implementing plans to close the 'profit gap'."

Obviously, the two firms above have both independent planning units. What is interesting to note, however, are the different backgrounds of their planners. In the first case, the planner has an engineering and administration background (B.Sc. (Eng.) + M.B.A.), and in the second case the planner is a finance specialist. These backgrounds can be clearly detected in their respective approaches to planning.

A firm whose activities cover most sections of the economy states the following : "Our plan is not strictly an action plan with objectives stated in specific ~~times~~ firms which are used as a control tool. Our Group Plan is the sum of the individual divisional plans which amount to statements of intent supported by financial and manpower forecasts made by the responsible managers and accepted after examination by the executive. It is not a strategic plan in itself but is used as a basis for strategic decisions to be made by the executive."

Some firms identify a comprehensive three- to five-year plan with a mere statement of the firm's objectives, as indicated by the following comment :

"The plan is essentially :

(1) To increase the share of the market.

(2) To improve profitability and return on capital.

(3) To develop new outlets for products.

(4) To improve the efficiency and productivity of the organisation with special reference to training and motivation of staff." (A chemical company)

Or by the following statement :

"Three-year business plan :

(1) Increase earnings per share, dividend per share, net asset value per share as detailed in financial forecasts.

(2) Concentrate in depth on existing activities, and embark on new activities only if sufficiently large.

(3) Improve quality of earnings, if possible.

(4) Maintain independence of ownership.

(5) Maintain integrity, staff social interests.

(6) Maintain flexibility." (A motor company)

Naturally, there were also responses similar to the following one : "This is our business and confidential, and our responsibility to our shareholders." (A firm from the building and allied industries group)

18.3 Planning Step No. 5 : How Detailed Plans are Elaborated, Including the Sub-Objectives, Strategies and Administrative Guidelines Necessary for the Implementation of These Plans - Validity of Our Assumptions

This stage of the planning process has been examined by an analysis of answers and comments to each of its steps which are shown below in the form of our questions covering these steps. At the same time we again use a summary of replies received as an overview, and assume again that if the majority of answers are affirmative to each step, this is evidence of the validity of our assumption.

Questions from Questionnaire	Positive Answers (100% = 79 Participating Firms)
25. Are detailed plans for reaching corporate objective(s) and carrying out the corporate strategy developed in your firm? (Table 26)	54,4%
26. Do you specify sub-objectives, and determine derivative strategies, policies, procedures and rules in all planning areas? (Table 26)	36,8%
27. Do you develop a step-by-step plan of action in all planning areas?	
A. Marketing - products or services	59,4%
markets	58,1%
competition	50,8%
financial aspects	63,3%
marketing research	40,5%
advertising & sales promotion	49,4%
sales & distribution	53,1%
marketing organisation	48,1%
marketing personnel	45,6%

Questions from Questionnaire		Positive Answers (100% = 79 Participating Firms)
B. Manufacturing -	plant location	48,1%
	equipment	49,4%
	maintenance	53,1%
	production	50,8%
	materials	49,4%
	manpower	49,4%
	other	17,8%
(Table 26B)		
C. Finance -	financial limitations taken into account in the overall company plans?	75,9%
	overall financial objectives developed and specific financial resources required to meet the company objective(s) and operating requirements?	74,7%
	forecasts made of how much these requirements met by generation of funds within the company and how much from outside?	72,1%
	plans developed how to obtain funds from external sources?	69,7%
	a system of financial controls established and maintained that cover the allocation and use of funds within the company?	75,9%
(Table 26C)		
28. After implementation plans are completed, do you review them, do you coordinate them, and do you integrate the individual plans within the overall comprehensive company plan? (Table 26D)		77,2%
29. Does your company's comprehensive plan include a summary of both strategic plans, individual operating plans, and staff plans and budgets? (Table 26D)		56,9%

Questions from Questionnaire	Positive Answers (100% = 79 Participating Firms)
30. Can you outline your company's comprehensive 3-5 years business plan? (Table 27)	27,9%

Although some of the outlined steps are not covered by the South African planning companies to the same depth as by their overseas counterparts, the examination of the information contained in the above summary offers evidence that our assumption that South African planning companies apply this planning step in the same way as found outlined in the accepted conceptual planning model is again valid.

19. HOW CONTROLS ARE DEVELOPED FOR MEASURING PERFORMANCE AGAINST PLANS

19.1 Control in Planning

The planning methodology studied indicates that to attain the company objective(s), performance standards consistent with the objective(s) must be set. In addition an adequate information system must be installed to provide data for comparing actual performance with performance standards in order to identify and isolate deviations and to establish their importance. This must be done so that any corrective action that is needed may be taken to ensure that the resources of a company are used in the most effective and efficient way to achieve the company objective within the specified periods.

As Table 28 shows, South African firms seem to realise fully the importance of controlling actual performance against planned objectives and goals. Only 12 firms, or 16,9% of respondents, do not develop and instal controls for measuring performance. These firms belong to the following industrial groups : one bank, two financial houses with industrial investments; one from the building and allied industries; one from the footwear and leather industry; three engineering firms; one motor and transport company; two from the paper and pulp industry; and one printing and publishing firm. All of them are small companies.

A few contradictory replies have also been found. For example, one engineering firm states that it has installed budgetary controls, and yet reports, at the same time, that it has not installed any controls. There is one comment that deserves mention too, because

it seems to illustrate well the present situation among South African planning firms. It reads : "Not as effectively as desired, more training necessary". (A conglomerate)

The performance standards must accurately reflect the intent of the plan and enable the manager to see to what extent the plan is in line with actual activities. The best known standard of control is the budget which helps control and coordinate the planning efforts.

Management control, being only an extension of the planning efforts, translates plans by means of the budgetary process into specific operational goals, and communicates these goals via operating budgets to operating managers. It helps to express plans in terms of profits and so it tests their validity; thus it shows the effects of individual plans on company profitability. Finally, budgetary control is used to measure and evaluate the effectiveness of the planning efforts and plans, and by pointing out the deviations it helps to review and to revise them.

A budget is, therefore, a formal statement by management of its plans for a given period which will be used as guide during that period. Budgets should be prepared for each major operational and staff area.

Our analysis shows that budgetary control as described above is appreciated by South African planning companies (Table 29).

Only seven companies, or 8,7% of all participants, do not use budgets for controlling their actual activities

against their plans. Naturally, a budget will be only as good as the plans upon which it is based, and should never be mistaken for the entire plan as so often happens. While there are general rules for budget preparation, no two companies seem to develop their budgets in the same way. This is influenced by the kind of company involved, by its organisational structure and complexity, and by the background of planners.

To offer a complete picture of how budgeting is tackled by South African firms would mean describing every single individual case. As budgets for individual operations vary, so budgetary review practices also vary. Budgets may be reviewed quarterly, monthly or even weekly.

To illustrate the variety of approaches, a few examples are offered below portraying the main approaches of specific groups.

An international bank, for example, has two main groups of budgets :

(1) Budgets concerning their branch functions;

(2) Budgets concerning their head office and covering
- promotion
- personnel
- central operations (controlling and planning finance and administration)

The review takes place annually.

Another bank has not yet developed budgetary control, and in a third bank it has only very recently been introduced.

A coal mine's budgetary control will, obviously be quite different from the above system. It is developed for the following areas : mining, coal washing and screening, engineering, secretariatand survey. The review also takes place annually.

A diamond mining company's approach covers : European labour, African labour, stores consumption, engineering and other services and consumption. Its budget is reviewed annually.

The budget of a gold mine, on the other hand, is broken down into departments, and departmental heads are held accountable for their attainment. These budgets are reviewed monthly.

A financial company with industrial investments has budgets for every strategic investment, and the budget period may vary from one to fifteen years. A firm in the building industry develops budgets on a yearly basis for manpower, capital, profit, expenses, stock and debtors. A chemical company's budgetary control for a period of one year, reviewed quarterly, covers raw materials, production, stocks, expenses, sales and staff complement and costs.

A firm from the clothing and knitwear sector has budgets for periods of six months covering production potential, overhead costs, stock levels and cloth buying, advertising expenses and salaries and wages. While another similar company controls, on a quarterly basis only, manufacturing efficiency, costing and

overhead expenses.

Within the groups of firms engaged in different industrial activities, budgetary controls are as different as are the activities of individual participating firms. A company manufacturing electrical appliances and supplies has budgetary control, with a one-year review period for plan and fixed assets, stock versus sales, sales, staff for individual sub-units and debtors and outside finance.

Another firm manufacturing electrical transformers and similar products controls production, manufacturing costs, sales, coverhead costs, investment and profits.

A company specialising in the manufacture of refractories and similar products has developed controls for all areas of revenue, all areas of cost and profits. A similar firm has budgets for sales, branch expenses and for manufacturing divisions. In the former company, the review period is on a monthly basis and the latter company has budgets established for three years with full details and for a further two years in broad terms, and review periods of a monthly and yearly basis respectively.

For one engineering firm, budgetary control means a budget for total capital expenditure requirements from each cost centre, reviewed every two years. Another engineering firm comments : "Our budgets - on a one year rolling basis in every good detail-checked monthly - for every separate profit centre - textbook method - all expenses, cashflow, turnover, stock, capital utilisation."

A different approach again can be found in the case of a paper and pulp company. Their budgetary control covers variable costs' efficiency and cost, fixed costs and volumes. The time period involved covers one year.

A company from the printing and publishing sector has developed the following system : "All subsidiaries, profit divisions and service cost centres are controlled against monthly performance standards budgeted monthly by participative management."

Stores' approaches to budgeting will be different again. One store establishes budgets for stocks of merchandise, expenses and personnel, while another store (a large chain retailing food and family clothing) has budgets covering sales, expenses and revenue. The first company reviews its budgets each month. In the second case, the company's Main Budget is for one year reviewed monthly and its Subsidiary Budget for one and five years, also reviewed on a monthly basis. Another large clothing retailing chain's budgetary control consists of an operations budget (branch sales, expenses, profits), a merchandise budget (buying, gross profits), an overheads budget (company and group), a cash flow budget and a capital budget. These budgets are reviewed annually.

A large sugar producing firm budgets only for operating costs for one year, reviewed monthly. An oil company uses budgetary control, with a time period of one to six years, which covers marketing, manufacturing, exploration and distribution.

Budgeting as it seems to be practised by many South African companies, pays a great deal of attention to

the quantitative implications of budgets while basic assumptions are not explicitly stated. Thus such budgets must, perforce, be focussed almost entirely on numbers and not on an analysis of basic assumptions.

The human elements must be recognised in budgetary planning. If budgets are designed as tools to control performance through people, then the impact of budgets must be felt by everyone in the company. Those responsible for the achievement of budget performance should, therefore, be involved both in the setting of goals as well as in the establishment of budgets. This is essential as not everyone engaged in the planning process could, otherwise, realise the importance of the budget as a tool of implementation planning. This may be the position in sixteen South African companies (Table 29) that frankly admit in their comments that people in their respective organisations do not achieve the required awareness.

19.2 People and Budgets

In a general sense, budgets tend to become symbols arousing fear, resentment, hostility and aggression. People supervising the process of budgetary control process need, naturally, training in human relations. Some of the participating firms realise the necessity of this kind of training and comment on the different techniques employed by them to achieve greater participation of all those engaged in the budgetary process, so that tension, leading to inefficiency, aggression or even a complete breakdown, can be avoided. The techniques are illustrated below.

A bank has indicated, for example, that it intends in the future to use the 'Nominal Group' technique, in which a group of managers is presented with a corporate situation and is then divided into small groups which discuss the problems, later reporting back to the main group. A diamond mine feels that enough is done to promote its personnels' participation if the budget is drawn up by all management levels - from the highest to the lowest - and budgetary information circulated to all concerned. The situation is seen, however, differently by another diamond mine, where to obtain the required participation, Louis Allen's M.B.O. (management by objectives) technique is used. A manganese mine aims at obtaining the required participation by using a technique called 'job relations'. 'Large scale delegation of authority' is the remedy used by a financial industrial group.

A large organisation (main products being footwear, luggage, wholesale and cash and carry lines; main services being shipping, transport, hotels and tourism) attempts to achieve the same aim through establishing 'super-ordinate' goals and through clear communication which permits measurement of an individual's performance against budget. "These human relations techniques, differ to suit various departments" reports a firm from the building sector and a reply from a firm manufacturing plywood reads as follows : "Budgets built up from below and Personnel Department trains employees. Monthly report back as to performance."

"Motivation through involvement in the budgetary and planning process right down the line" is the approach chosen by a firm specialising in asbestos cement, plastics and similar products.

On the other hand, a firm manufacturing chemicals does not use any specific technique. It believes that involvement of staff at all levels in the planning process is the answer to the problem of participation.

"Lectures and seminars" are used to achieve the desired participation and motivation by a firm operating in the furniture and household appliances sector; and a large industrial organisation comments as follows : "I don't understand the question - we certainly have spent time on this aspect." Another smaller concern gives the following answer : "A difficult question. We all think 'yes' but do not know." The report of another large industrial group reads : "The general manager of each plant meets the departmental heads at intervals to follow up on the objectives, and is able to coordinate the effort as he goes along. Likewise the chief executive or the group financial manager meet the General Managers on a similar basis."

A laconic "Accountability"! is the 'technique' suggested by an engineering concern and this view is elaborated, as follows, by a similar large concern : "Managers are held fully responsible and accountable for the results forecast in their plans."

A motor company attempts to solve this problem through meetings, arranged twice a year, of all those engaged in the planning process.

A major manufacturer of motor vehicles expresses the view that the desired participation can be achieved if all line managers participate in the preparation of budget planning in conjunction with their respective staffs.

"We are trying several now - but mainly better communication "motivation". We do not favour "scientific fads" as devised monthly in the magazines by 'experts'", is the answer given by a large engineering company. On the other hand, a company distributing newspapers, books, magazines and electronic machines comments as follows : "Forecasts are built up by each management level involved and presented by them at a formal review session with full question and answer participation." One large chain store states that its method of achieving the necessary participation consists of goal setting and demands for results. For another store the M.B.O. technique is the answer, whereas a third store believes, again, in a deeper involvement of line managers in goal setting and budgeting.

A sugar company is, at present, studying the introduction of human relations techniques.

On the whole, only 25 companies confirm that they use these techniques to increase the personnel participation many of them without specifying the kind of techniques used. 46 Respondents admit that they do not apply techniques at all (Table 30).

The above analysis would suggest that, in many South African planning companies top management seem to use budgets mainly to 'motivate' or, said more explicitly, 'to exercise pressure' on their employees and to obtain higher results.

From answers and comments relating to this planning step, it seems to the writer that the principles and techniques of behavioural science are neglected.

During review meetings, those involved in the budgetary process are, in reality, asked to accept, reject or modify the budget, which, in the majority of cases, was inspired and constructed by the financial experts of the firm. They are not asked to help create their own budgets.

19.3 Measuring the Effectiveness of Planning

Some years ago, the Stanford Research Institute[15] studied the statement 'Why Companies Grow' and one major conclusion of this survey was that companies supporting formalised planning have shown a superior growth rate. Thus, formal planning does lead to success.

Naturally, if planning is to be successful, two extremes must be reconciled and a correct balance between them established. To measure effectiveness of planning, both the long-range and implementation planning must be measured, but methods used for measuring effectiveness for each of these types of plannings differ.

As far as implementation planning is concerned the measurement of its effectiveness may appear to be quite simple and easy. Budgetary control, its main tool, is a simple task because it tells to what extent the goals are being reached or not. However, to find the reasons when goals are not attained is often a difficult process. If a company's planning was poor, or if it failed to anticipate specific trends, then it may have difficulty in correcting problem situations because its objectives and goals have been incorrectly stated.

The second major difficulty in measuring effectiveness

of planning through budgetary control is the unreliability of many standards used by firms to measure performance. Yet, in spite of these shortcomings, the budget is a very useful tool for measuring the effectiveness of implementation planning.

However, since budgets cannot be used so easily to measure the effectiveness of long-range planning, one of the principal criteria in judging success of planning is return on investment. Yet, success in this area cannot always be directly related to specific planning efforts because many other factors may be influencing it. Thus supplementary criteria must be found and used.

Bruce Payne[16] suggests that the following criteria should be used during the initial stages of long-range planning :

(1) Has the planning team determined the key influences in the growth of the industry and evaluated the influence of each?

(2) Have the strengths and weaknesses of the company functions to support the plan been projected far enough ahead?

(3) Have the capacities of different company functions to support the plan been projected far enough ahead?

(4) Is there a practical timetable?

(5) Have alternatives been considered?

(6) What provisions have been made for future reverses?

In practice it is not difficult to judge the effectiveness of long-range planning efforts after the first or

second year. The following questions can be used as a checklist :

(1) Have the major objectives detailed by the plan been met?

(2) Have the forecasted major environmental trends actually occurred?

(3) Have the plans for meeting anticipated emergencies proved to be adequate?

(4) Have new external developments been incorporated into the plan as they have occurred, and have the major company programmes been continuously reviewed within the specified planning horizon?

(5) Has the required return on investment been attained; was it better than that of competitors?

(6) Is the company leading or following competition in product, market, facility development?(17)

Against this methodological background how do the South African planning companies measure their planning effectiveness? Their approach to it, obviously, varies considerably even in a specific group, as the examples cited below illustrate. No specific influences, dictated by the characteristics of individual industrial groups, could be traced.

Yardsticks used by South African planning companies to measure the effectiveness of their long-term planning :

"- Realism - comparison of planned and achieved results
- Use to managers
- Are overall objectives actually being achieved?"
(A bank)

"Advertising and market research surveys" (A bank)

"Profitability and market penetration criteria" (A bank)

"Monthly cost figures are compared with budget figures and variances examined" (A coal mine)

"Through achievement of stated objectives" (A diamond mine)

"By results" (A diamond mine)

"By monthly reviews of actuals against budgets" (A gold mine)

"By performance against objectives" (A manganese mine)

"By the measurement of performance against budget and current planning against past planning" (A large holding industrial company)

"Against performance" (A financial industrial firm)

"By comparison of actuals against plans" (A very large holding industrial group)

"Through efficiency indices, financial controls and results and many more" (A firm in the building industry)

"(1) Production; (2) Quantity sales; (3) Sales volume comparisons but after allowing for price fluctuations" (Another firm in the building industry)

"Through monthly comparisons and reports written on variations" (A firm manufacturing plywood)

"Mainly financial - return on capital employed" (A chemical firm)

"By measuring the achievement against the Plan" (Another chemical firm)

"By profitability" (A third chemical firm)

"Against financial results" (A firm manufacturing clothing)

"Actual performance is compared with budget. Variances are examined not only to monitor performance but also to verify budget accuracy" (A firm manufacturing household articles)

"(1) Results versus Year 1 Plan; (2) Periodic review meetings with all companies concerned" (A very large industrial holding company)

"Return on net assets employed" (A firm manufacturing electrical transformers and similar products)

"(1) Short-term:accuracy of budgeting achieved; (2) Long-term:growth in earnings per share of the group" (A firm manufacturing industrial porcelain and refractories)

"By continuous informal review and formal reviews each quarter. Primarily measurement of actual performance against agreed non-quantified and quantified goals and objectives" (A large industrial group)

"Financial results in relation to utilisation of assets and growth of an actual rate" (A motor company)

"Measurement against budget which in turn is measured against the return on capital required by the Holding Company" (Another motor company)

"By constantly living close to the action and assessing how things are going along in each area - best intelligence we can get from market. But close attention to financial return against budget" (An engineering firm)

"No formal measurements exist. Management itself has expressed the wish to be judged on its performance against the group plan. Those responsible for its group execution share in the equity of the firm" (A printing and publishing company)

"Actual performance compared to budgets" (A store)

"Actual results are measured against forecast at two months intervals in the case of budgets, and annually in the case of five year plan" (A sugar company)

"Quarterly appraisal of performance of financial criteria. Monthly of volume objectives" (An oil company)

Many more similar approaches could be cited, but all confirm that the vast majority of South African planning companies attempt to measure only the effectiveness of their implementation planning.

Among 79 participants a very few companies seem to realise what is involved in measuring long-range planning effectiveness. Perhaps the best among them are those that made the following two statements :

"While the importance of this measure is recognised, processes and criteria for measuring the effectiveness of planning must still be developed" (A large industrial group)

"Very difficult - generally by stable growth - less shocks, less risks!" (A chain store retailing clothing and footwear)

It is, therefore, not surprising that 24 companies do not measure the effectiveness of their planning efforts at all.

19.4 Advanced Techniques Used in Long-Range Planning

The budget is not, however, the only management tool control tool used in planning. Quantitative and graphic analysis, electronic data processing and systems simulation can also be employed by planners to improve their planning efforts.

A term such as 'advanced techniques' means different things to different people, The techniques listed in our questionnaire are not widely used by South

African planning firms for long-range planning, but our analysis indicates that at least a few companies have been using them for some time with worthwhile results. To avoid confusion as far as the terms used are concerned, we have employed, in our study, the most frequently used in the relevant literature. Even so, some participants did not understand some of these terms, as question marks seem to suggest.

Table 31 illustrates the use of these techniques, but before a summary of these findings is given, a few clarifying remarks are necessary.

Linear programming is a mathematical technique for optimising the use of resources (money, raw materials, machines, space, transportation, equipment, time and personnel) to achieve specific goals. The term 'linear' describes a directly proportional relationship between one or more variables, and 'programming' means the mathematical techniques used to find the optimal solution.

Dynamic programming is used where resources are allocated in a sequence of interdependent decisions over a period of time, and the aim is to obtain the the maximum return on the entire sequence of decisions. It can be used for solving problems in every major business area - marketing, production or financial planning.

The decision theory is a method for selecting the best course of action from among several alternatives under conditions of uncertainty. It is also referred to as decision-making under uncertainty, or a statistical decision theory. The theory of probability deals with random events whose outcome is determined by chance;

using techniques of Bayesian statistics the decision-maker can estimate subjectively the probabilities of events under conditions of uncertainty. Combining these estimates with the expected consequences, planners can decide which course of action is most likely to give an optimal solution.

The theory of probability can be used in capital budgeting, product pricing, inventory decisions, launching a new product and in buy-or-make decisions.

Queuing, or waiting line theory, is a mathematical technique used in planning for scheduling and handling the arrival and service of some kind of unit. Using this theory, planners can determine the most economical balance between the cost of waiting for service and the cost of providing additional facilities.

Game theory - also a mathematical technique - is used in competitive situations in which the success of one party is realised at the expense of others. The decision-maker thus does not control all the factors influencing the outcome.

PERT (programme evaluation and review techniques) and CPM (critical path method) are used in the planning and scheduling of projects. Both are graphic network techniques used to achieve the maximum utilisation of manpower, machines and time for a project. A project is divided into its components and the sequence of activities needed to complete the project is determined. The project is then presented in the form of a flowchart.

Both techniques are used to decide (a) whether to undertake a project, (b) to develop a plan for carrying

it out, and (c) to control its progress.

The above techniques are used mostly for short-term, operational planning. Yet many such situations may have long-term implications and thus these techniques can be used at all levels of planning.

Most models described can be used as vehicles for simulation. Basically one uses simulation when it is possible to formulate a model which is too complex for analytical determination of optimal solutions. But the structure is sufficiently well understood for it to be possible to try out a range of possible values of parameters and determine the results of changing these impact values. Then within limits of the stochactic nature of the model it is possible to find by repeated trial and error which values of the decision variables give the best (most desired) results.

The table below indicates the techniques used by the firms investigated :

Linear programming	by 12 companies or 15,2%
Dynamic programming	by 4 companies or 5,7%
Decision theory	by 12 companies or 15,2%
Probability theory	by 15 companies or 18,9%
Waiting line theory	by 6 companies or 7,6%
Game theory	by 2 companies or 2,5%
PERT	by 19 companies or 24,0%
CPM	by 16 companies or 20,2%
Model building and simulation	by 29 companies or 36,8%
Other techniques	by 14 companies or 17,8%

The 'other techniques' above include Open Pit Design Model, Mines Financial Model, Draw Control Model for Production, Ore Reserve Models (for associated companies) (a diamond mine); and Growth/Market Share Matrix, Learning Curves (a chemicals distributing company). Also Mix-Integer Programming (another diamond mine).

The following comments highlight the present situation among South African planning companies as far as the use of management techniques is concerned. The first two come from companies that have either recently introduced or are at present attempting to introduce these techniques : "Model building is being used and developed more and more!" (An engineering concern); and "We are presently studying the application of scientific techniques including the above utilising a more powerful computer installation than is presently available." (A major motor vehicles manufacturing firm)

A third statement has been made by a very large industrial organisation that has been experimenting with quantitative techniques for many years, and is most significant : "The response here perhaps over-states the situation; to a lesser or greater degree these techniques have and are being used in developing, evaluating and controlling a specific project, but our experience has shown that by and large, they are unnecessary."

There is no doubt that some firms belonging to specific industrial groups favour the use of quantitative and graphic techniques more than others, and our findings show that such firms belong to the following industries: diamond mines, financial houses with industrial investments, building and allied industries, chemical

industry, iron, steel, engineering and electrical industries, motor vehicles industry, paper and pulp industry, printing and publishing industry, oil companies and some stores.

On the other hand, the following industries have little or no interest in 'advanced techniques' : banks and building societies, beverages and hotels industry, gold mines, coal mines, metals and minerals mines, clothing and knitwear industries, sugar industry and footwear and leather industry.

19.5 Information System

In order to plan and make decisions, managers require information. To collect, store and disseminate it, some kind of processing system is necessary. Information processing may be performed manually, by electrical accounting machines (punch card system), or by electronic data processing machines (computers).

The information required for planning is broadly of three types :

(1) Environmental information describing the social, political and economic aspects of the environment in which a company operates or may operate in the future.

(2) Competitive information explaining the past performance, programmes and plans of competing firms.

(3) Internal information which indicates a company's own weaknesses and strengths. Internal data can be thought of as of three types : (a) quantitative

financial, e.g. sales, costs, cost behaviour relative to changes in volume; (b) quantitative physical, e.g. productivity, share of market, delivery performance and manpower resources; and (c) qualitative, e.g. changes in consumer taste. In reporting internal data, a company's information system must be discriminating and selective, focussing particularly on those factors that lead to success.

A set of management reports is needed, regularly covering the above three categories of planning data to support the planning process efficiently. The amount of information varies naturally from company to company depending again on such factors as the nature of the industry, the size and operating territory of the firm, and last, but not least, the acceptance by management of planning as an essential function. Obviously, it is of the utmost importance in every case for management to formalise the collection, transmission, processing and the presentation of planning information.

The study of literature on planning and of planning practices reveals that the most effective approach to determine the information required for planning is to relate the three types of data described above to the steps of the planning process, thus :

(1) Planning and organising the planning effort.

(2) Defining planning premises.

(3) Determining the company objectives.

(4) Developing policies and guidelines for action.

(5) Developing implementation plans.

(6) Coordinating and controlling planning.

(7) Reviewing of plans.

However, to describe the kind of information related to the above steps and needed by planning managers we can expand these steps in the following terms :

Step 1
Step 2 (a) The evaluation of present situation.

Step 3 (b) The identification of alternative objectives and the selection of the best alternative.

Step 4 (c) The identification of means to achieve the specified objectives.

Step 5 (d) The evaluation of these means and the selection of the most desirable means.

(e) The implementation of these means in order to pursue and achieve the objectives.

Step 6
Step 7 (f) The control of actual performance and the feedback of variations between the planned and achieved results.

A manager's effectiveness depends on the quality, completeness and relevance of the information that flows to him and on his skill on using these data.

With technology changing so rapidly, with the time factor becoming increasingly critical, with organisations becoming larger, with more diversified product lines, and with a greater geographical dispersion, it is inevitable that South African executives rely more and more on formally presented information as Table 32 clearly indicates.

From	79 reporting companies	100%
	61 companies have manual data processing systems	77,2%
	10 companies have an electrical data processing system	12,7%
	45 companies have an electronic data processing system	56,9%
	5 companies have manual and electronic data processing systems	6,3%
	8 companies have manual and electrical data processing systems	10,1%
	3 companies have all three data processing systems	3,9%

Is electronic data processing adopted more by some firms than by others? Are there some special factors that would facilitate or even dictate its adoption?

We could detect only one factor - the organisational complexity such as is found in multiplant or multi-divisional firms or conglomerates in which an enormous mass of data must be gathered, digested and presented in usable forms to management. However, the findings also confirm that firms employing both manual and electronic data processing systems are found in all industrial groups. The use of electrical data processing systems seems to be favoured by smaller firms in all industrial groups. But they are also used by some larger firms such as banks, gold mines, financial houses with industrial investments, building and allied industries, the chemical industry, furniture and household appliances group, packaging industry and the sugar industry. The specific reasons in such rather isolated cases (an average of one firm per group) are that they probably have a more traditional and cost-conscious management.

19.6 Computerised Planning

The increasing complexity of firms operating in a dynamically changing environment has resulted in the development of computerised company planning systems in many firms during the last ten years. This kind of planning can be defined as the use of computers to simulate the effect of alternative courses of action on the achievement of company objectives. It ranges from the complex, sophisticated linear programming model to the modular simulation systems being developed today.

Using traditional methods, executives cannot explore a number of alternatives rapidly or review projections as conditions change. The computer is thought to be the ideal tool for achieving this aim. However, very few executives realise that a major prerequisite for success in this direction is good organisation, and progressive management. Such conditions, unfortunately, are seldom met, and so modelling is, at present, generating more problems that it can solve.

All major computerised planning installations, (with a few exceptions as illustrated below), used by South African planning companies are financially oriented, and their primary objective is to shorten the time taken to develop budgets by simulating alternative strategies at the group or top management level before preparing detailed budgets at the divisional or factory level.

There are only 22 South African companies using computerised planning, and four firms are about to introduce it. We shall again use the respondents' descriptions of the types of models used and functions performed by such

COMPACT programs. Both these installations are used for the simulation of profits, etc. for future years.

An oil company describes the use of its computer planning models as follows : "Linear programming models to optimise crude oil processing to meet public demand. Facilities to study alternatives and sensitivities. Optimisation of cost proceeds relationship." Another oil company uses linear programming and mixed integer programming models mainly for distribution and refining problems.

One large industrial group that has had a good deal of experience in planning, comments very significantly : "The use of computers and computer models for corporate planning has not been ruled out; we just have not got that far. (This statement of course ignores the considerable use made of our computer to consolidate - as opposed to prepare - our short-range plans.)"

Table 33 gives details of the above analysis.

South African companies using computerised planning belong to the following industrial sectors : banks and building societies (1), diamond mining (2), gold mining (1), financial houses with industrial investments (1), chemical industry (1), clothing and knitwear industry (1), iron, steel, engineering and electrical industry (3) motor and transport (2), paper, pulp, packaging (2), printing and publishing (1), chain stores (2), sugar (1), oil companies (3) and the service industry (1). The organisational complexity seems to be the main influencing factor for the introduction of computerised planning although there is no doubt that in some cases it might have been the selling skill of the computer manufacturers' agents.

19.7 Planning Step No. 6 : Coordinating and Controlling Planning - Validity of Our Assumptions

Our approach to testing the hypothesis on this planning stage will be the same as in previous stages. We shall examine the affirmative answers received to our questions that cover the individual steps of this stage of the planning process by setting them in an overview, and using the same principle as before.

Questions of the Questionnaire	Positive Answers (100% = 79 Participating Firms)
31. Do you develop and instal controls of measuring performance against planned objectives and goals? (Table 28)	74,7%
32. Does your company use budgets for controlling performance standards for each major operational and staff area? (Table 29)	81,2%
34. Does everyone engaged in the planning process realise the importance of the budget as an implementation planning tool? (Table 29)	69,7%
35. Are human relations techniques applied in your firm in developing a method for obtaining truly active participation in the budget planning process? (Table 30)	31,7%
37. Does your company use some quantitative and graphic techniques in planning?	
(1) Linear programming	15,2%
(2) Dynamic programming	5,1%
(3) Decision theory	15,2%
(4) Probability theory	18,1%
(5) Waiting line theory	7,6%
(6) Game theory	2,5%
(7) PERT	24,0%
(8) CPM	20,2%
(9) Model building & simulation	36,8%
(10) Other	17,8%

Questions of the Questionnaire	Positive Answers (100% = 79 Participating Firms)
38. What is the nature of your company's information system? (How do you collect, screen, rearrange and disseminate data required for planning?)	
(1) Manual system	77,2%
(2) Electrical (or electrotechnical) data processing system	12,7%
(3) Electronic (EDP) data processing system	56,9%
(Table 32)	
39. Do you use computer models for corporate planning? (Table 33)	27,8%

The conclusion which can be drawn from the examination of the above data is identical to that formulated in our preceding chapter. There is strong evidence that our hypothesis that South African planning companies use the planning steps formulated in our above questions 31, 32, 35 and 38, is valid. However, South African companies lag behind American and European firms in the use of advanced planning controlling techniques detailed in our question 37 and in computerised planning covered by our question 39. Furthermore, South African firms do not apply human relation techniques to obtain truly active participation to the same extent as American companies do. ref ?

20. HOW PLANS FOR A SUITABLE ORGANISATION AND STAFF ARE SET UP

20.1 Organisation for Long-Range Planning

Our survey of literature stresses the fact that while it is not difficult to establish a planning department, it is a different task to develop an organisation that not only understands the planning process but that is also committed to the concepts and disciplines of planning. To develop such an organisation is one of the last steps in the planning process. Without an adequate organisation, plans cannot be carried out. It is an axiomatic saying that every strategy dictates its organisational structure.

A planning organisation, like any other functional aspect of a firm cannot be established overnight. This process of establishing a planning organisation involves the resolution of the four basic problems :

(1) Grouping of related business activities.

(2) Delineation of authority and responsibility within these groups.

(3) Effective coordination between these groups.

(4) Introduction of this new organisation, or introduction of an organisational change.

To answer all the questions relating to these problems, company plans, objectives, strategies, policies as well as implementation plans, must be examined to define all tasks and activities required for the attainment of company objectives. Based on this examination, some kind of organisation structure, accommodating all these requirements at all levels is developed.

How do South African companies accomplish this task?

Only 50 companies of those participating in this survey, develop suitable organisations and staff to implement company plans and 49 have drawn organisational charts. Unfortunately, a large majority of South African companies consider their organisational structure to be highly confidential and are not prepared to divulge any details.

We were, therefore, able to secure only a few charts, which are illustrated in Figures 17 - 24. These documents portray the different approaches to organisation planning by companies belonging to different groups. In only two cases (both large industrial groups) is planning a staff function.

From the 79 companies, 22 companies do not have any organisational chart, and the question obviously arises of how the responsibility and authority patterns are defined and assigned, and how working relationships are established in these companies. Their individual answers will again best illustrate how the above tasks are performed.

"Relationships are defined by means of general memoranda or circulars. While no organisational chart exists, there is no room for doubt about the extent of an individual's responsibilities", reads the reply from a large financial/industrial firm.

Another company, active in the beverages and hotel industry, indicates that responsibilities and authority are defined and assigned on a completely informal basis. So also are the working relationships established in their group.

Figure 17

Group Corporate Organisation

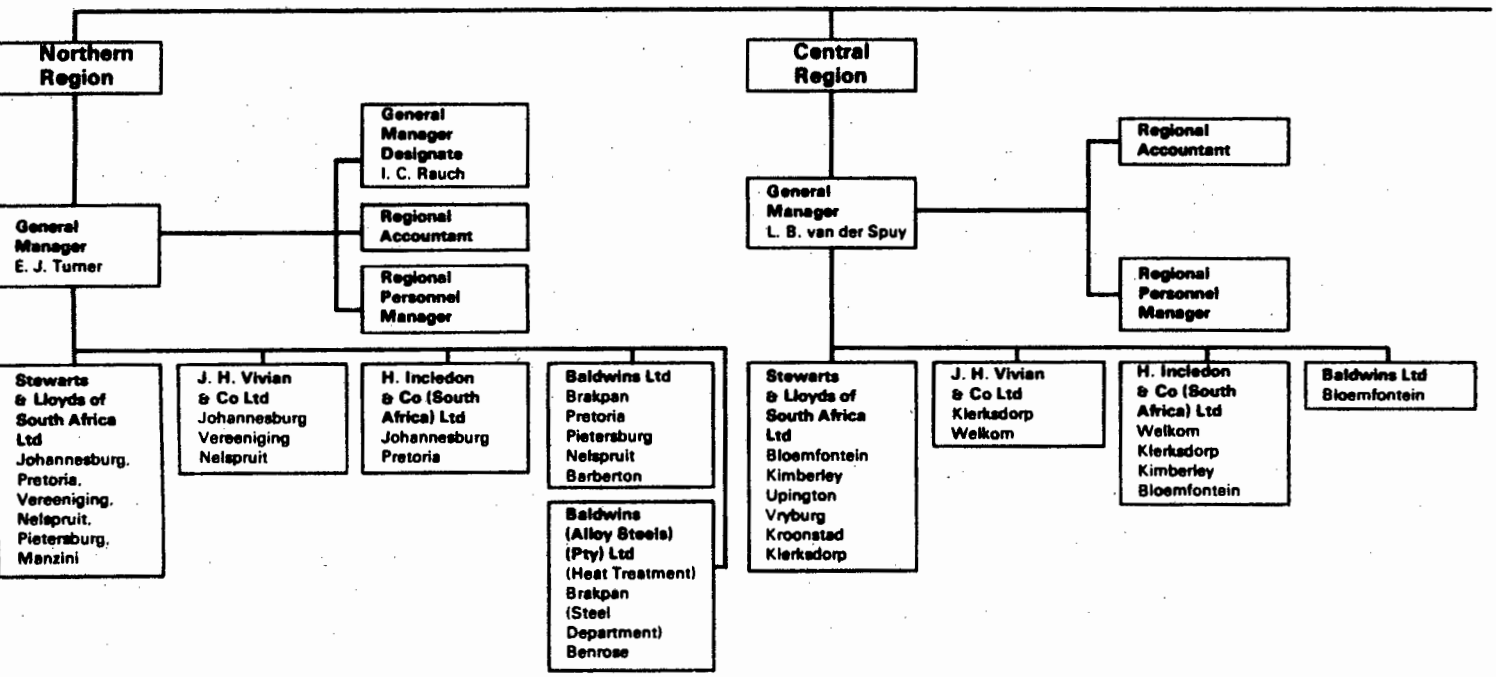


Figure 17 (cont.)

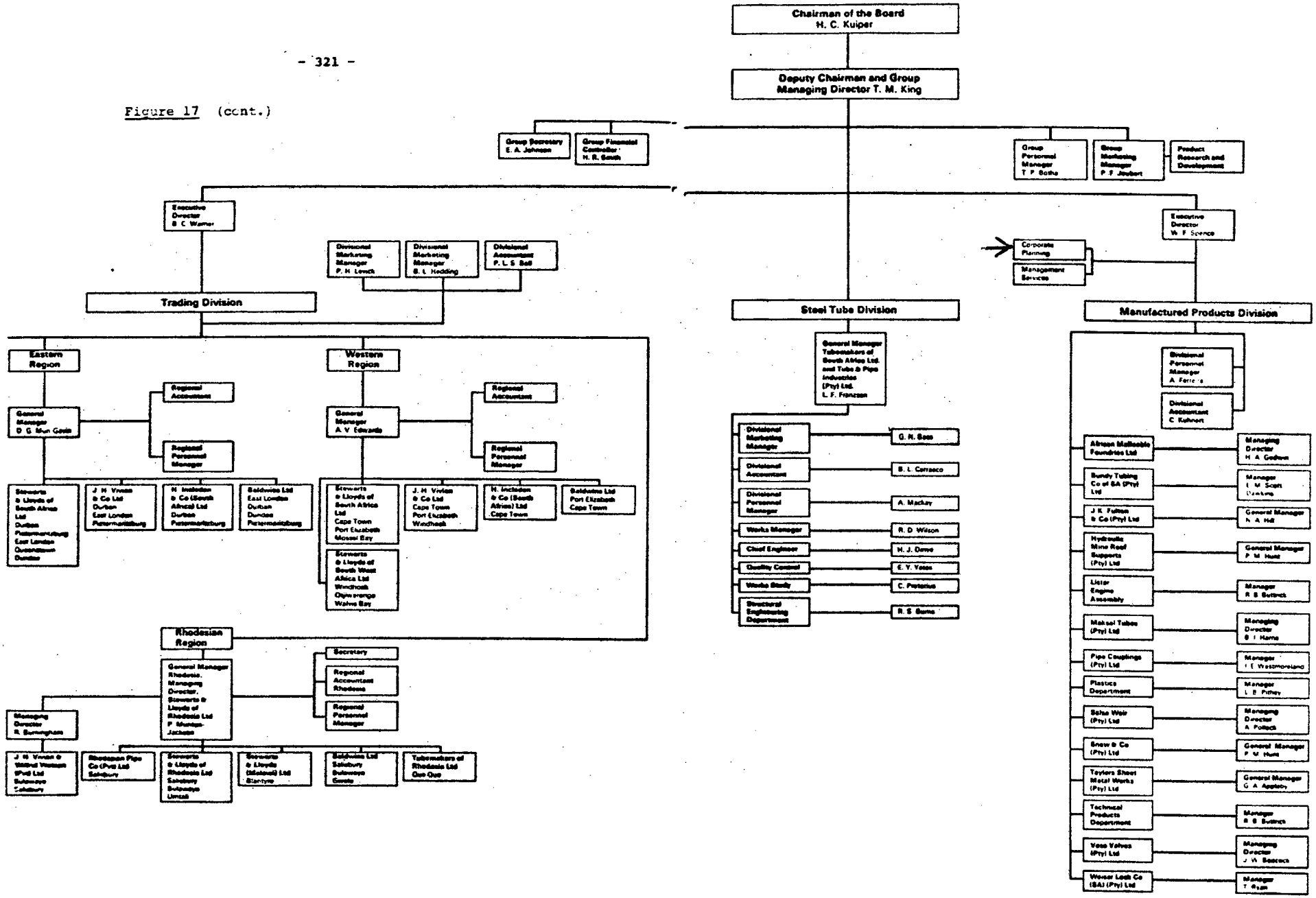
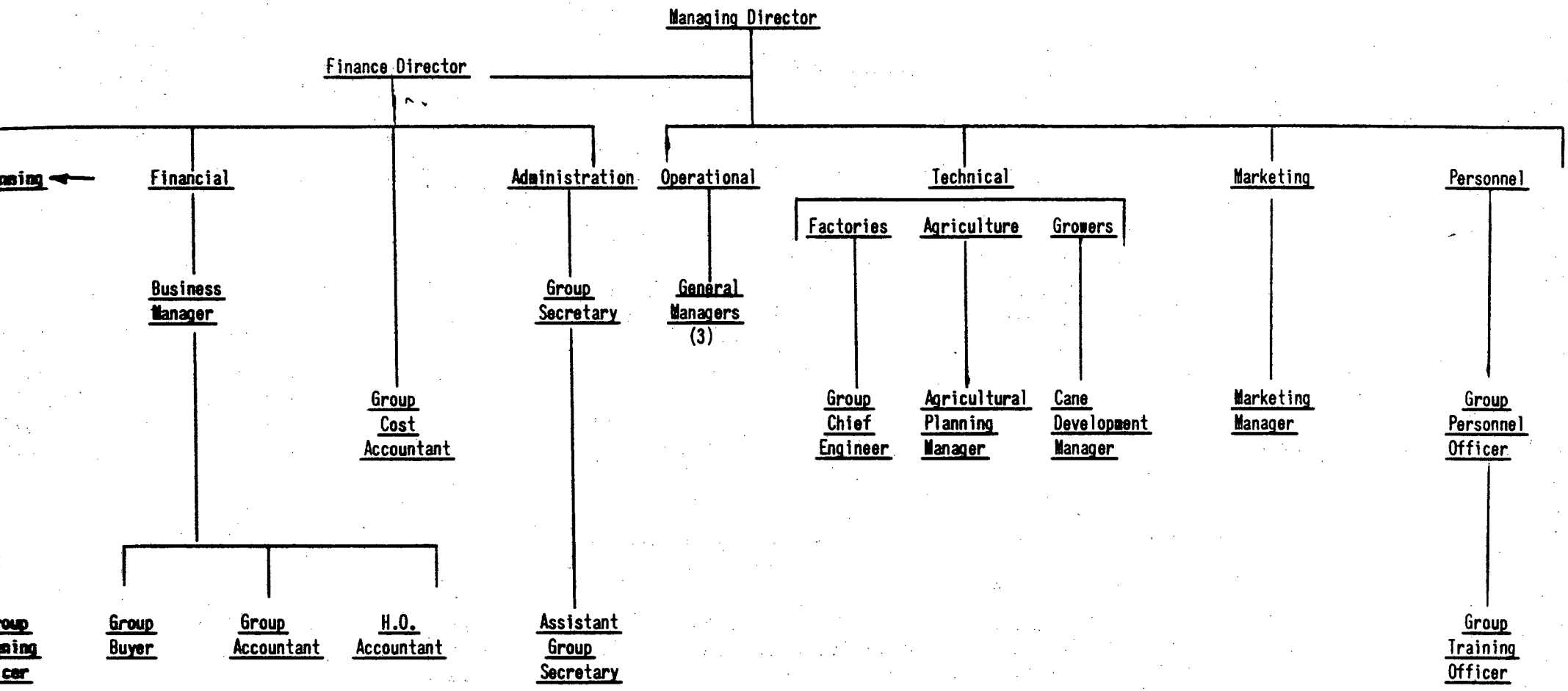


Figure 18

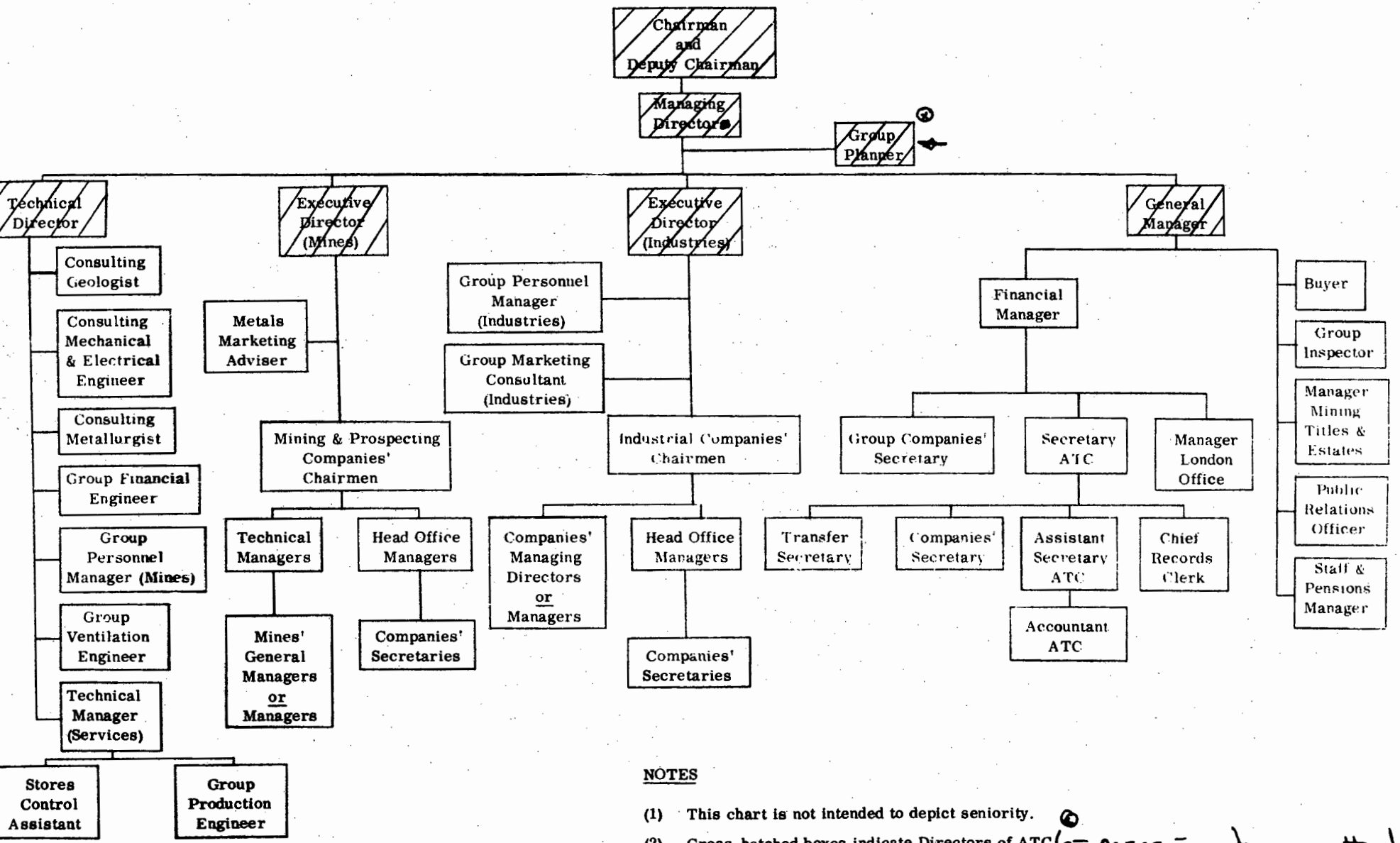
HEAD OFFICE ORGANISATION



J.P.W.
12/10/73.

Figure 19

ANGLO-TRANSVAAL CONSOLIDATED INVESTMENT COMPANY, LIMITED ORGANISATION



NOTES

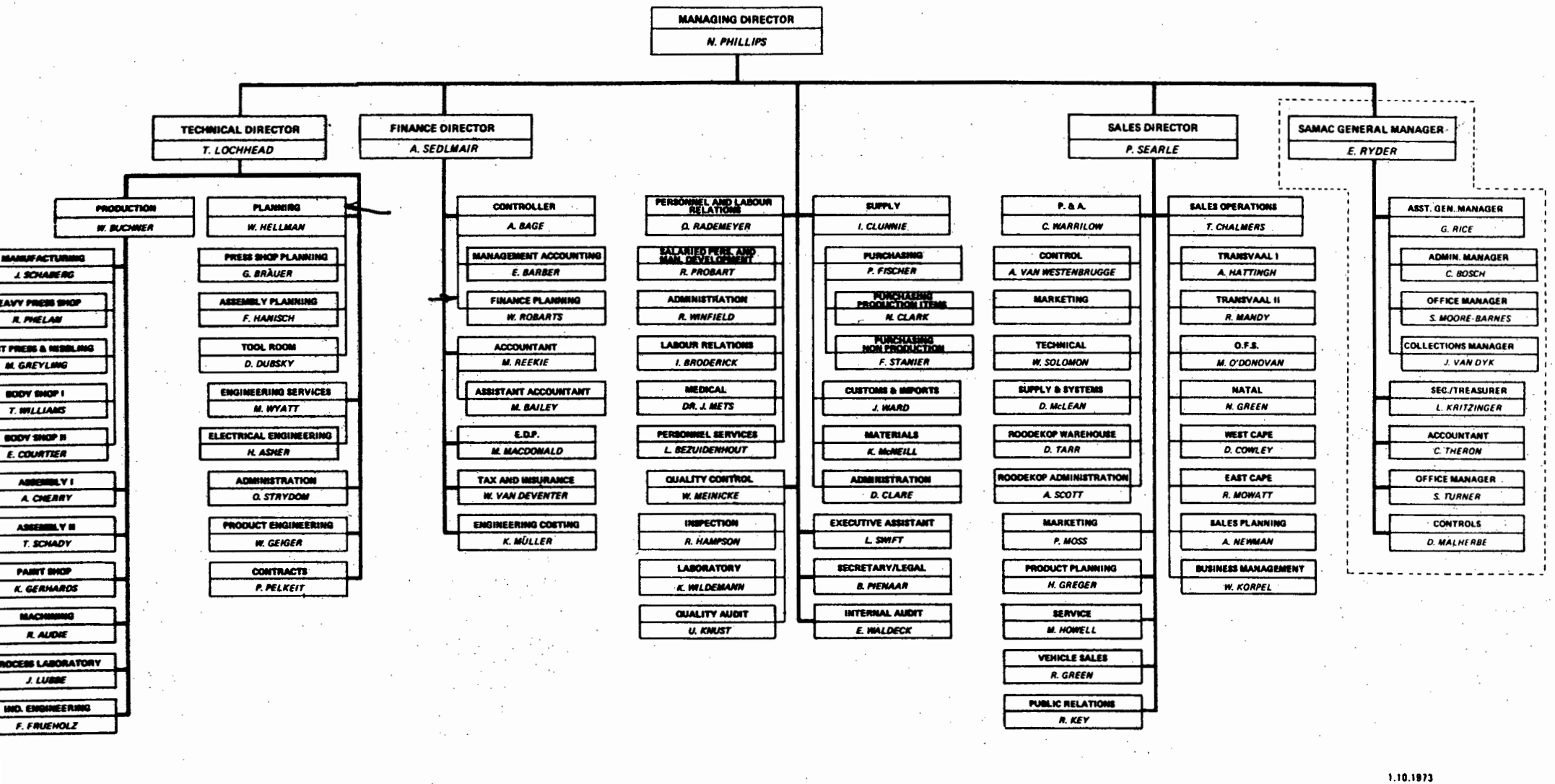
(1) This chart is not intended to depict seniority.

(2) Cross-hatched boxes indicate Directors of ATC (at present, not as matter of Policy)

NM/AT
th November, 1971

Figure 20

ORGANISATION CHART



1.10.1973

Figure 21 DE BEERS CONSOLIDATED MINES LIMITED.

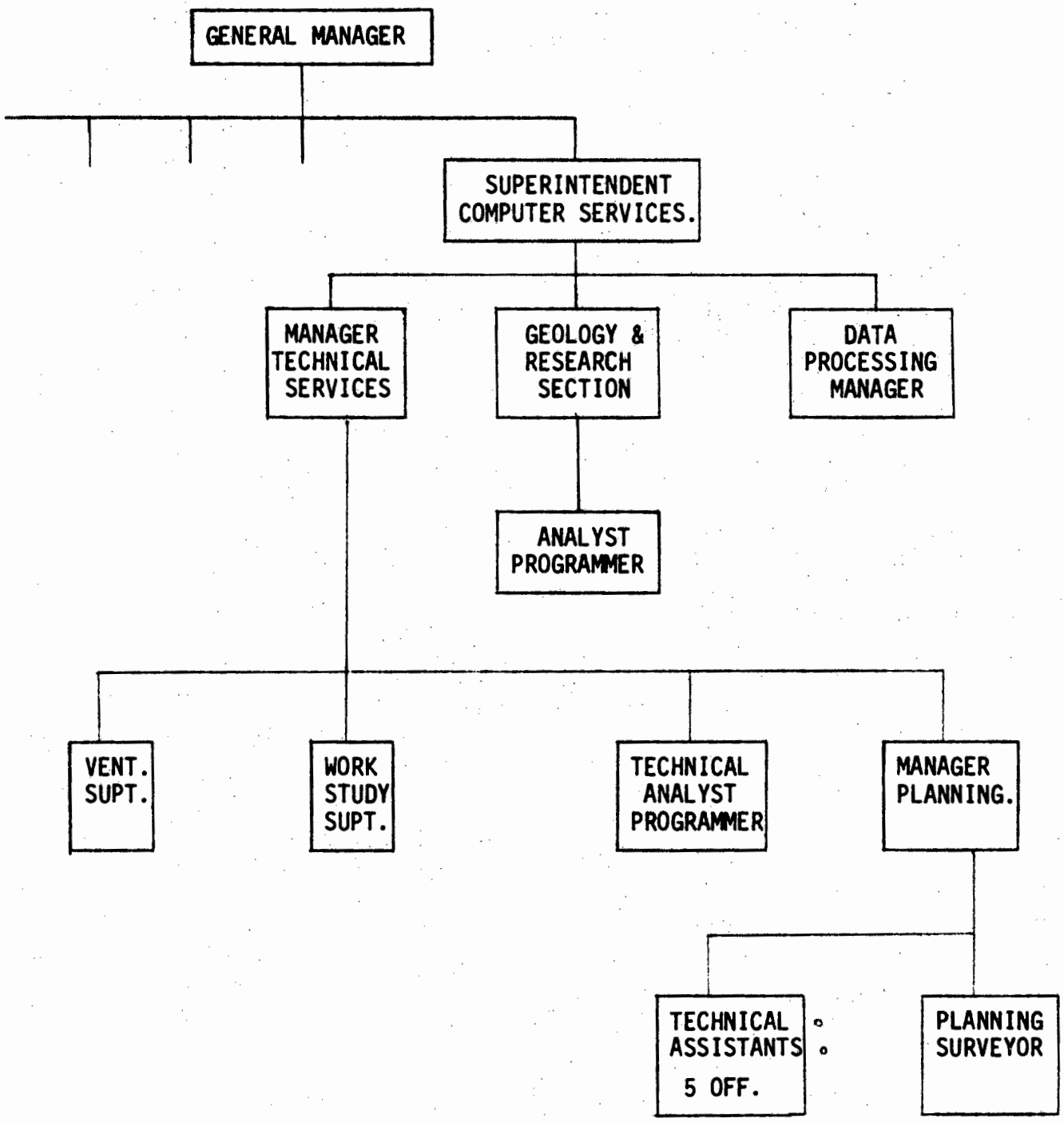
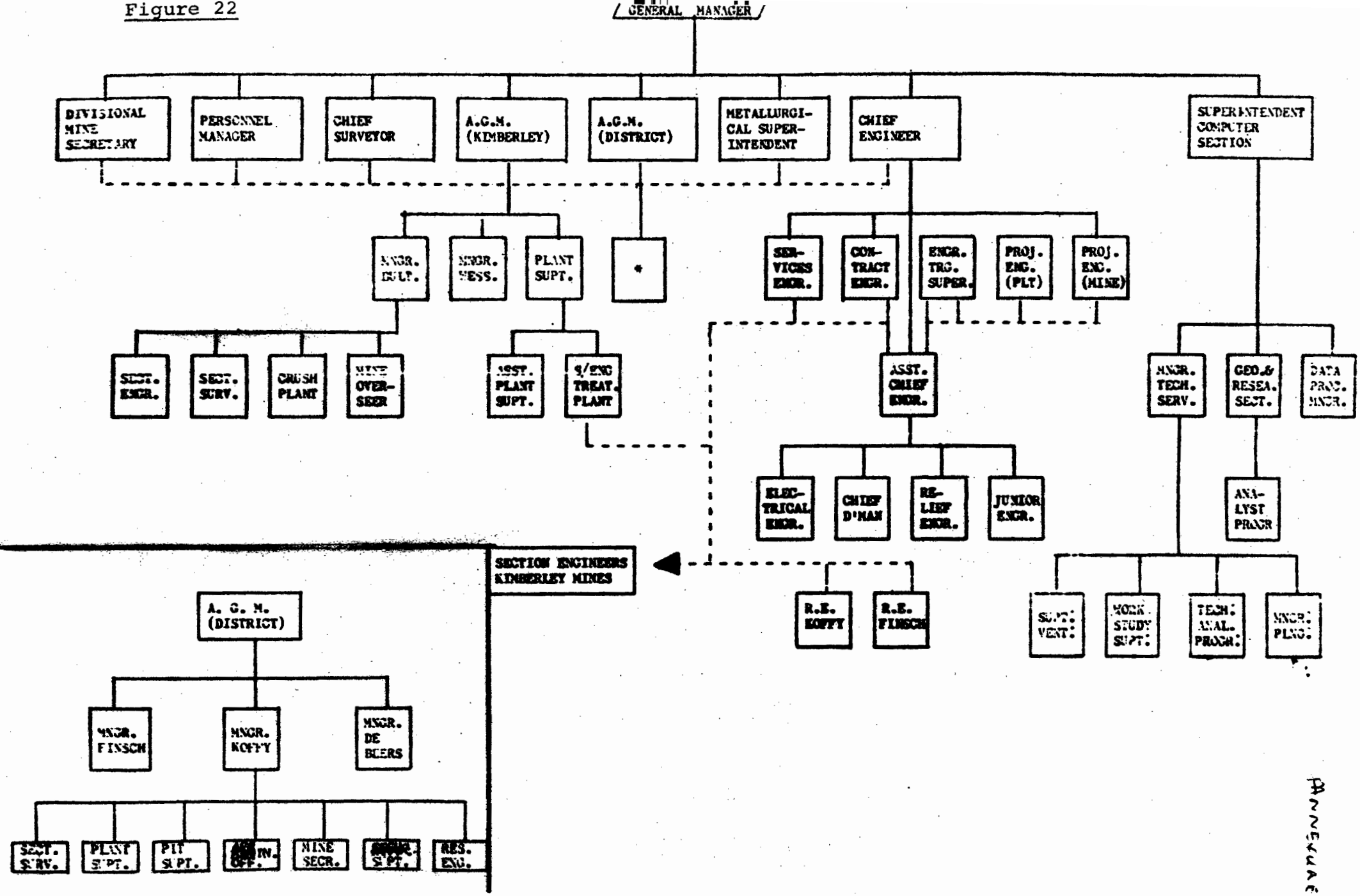


Figure 22



ANNEXURE C

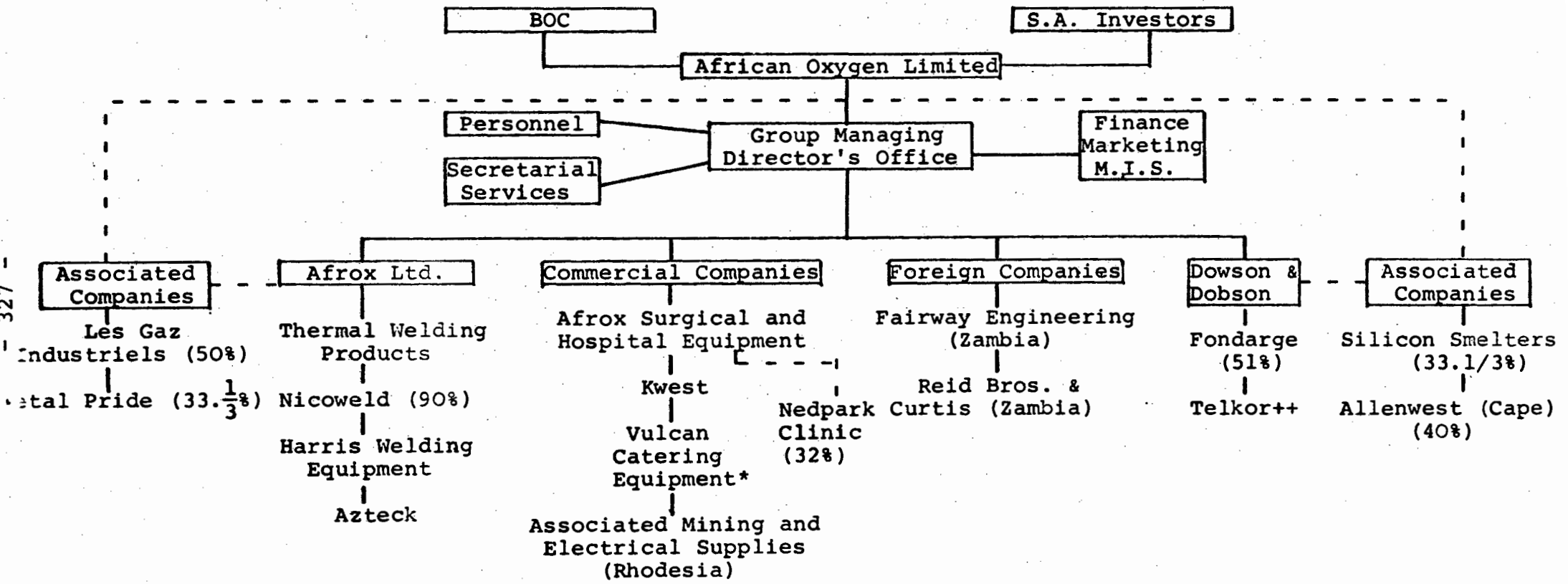
Figure 23

AFRICAN OXYGEN LIMITED

CHART NO.I

L.R.P.'74

THE AFROX GROUP STRUCTURE 1973



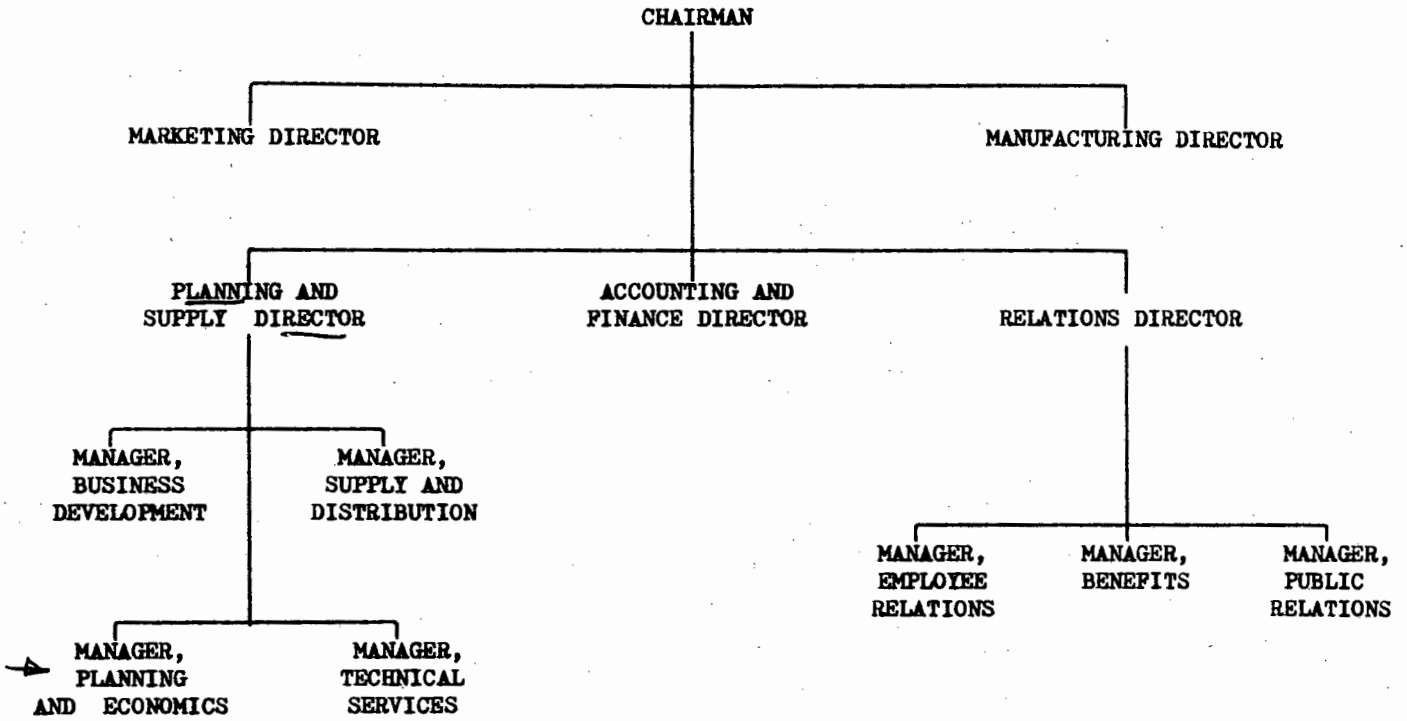
* Combined operations of Green and Benham and Hotel and Hospital Suppliers as from 1st October, 1973.

++ Previously Dowson & Dobson's Electronic Division.

JULY 1973

Figure 24

MOBIL, SOUTHERN AFRICA

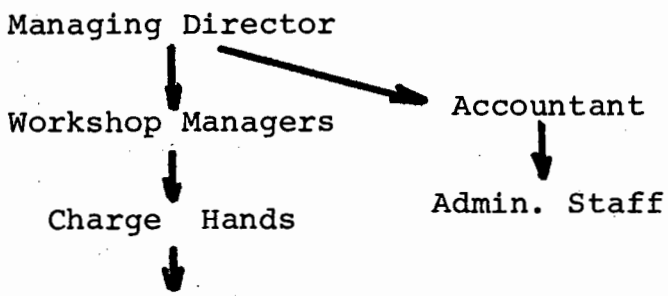


June 1, 1973

A firm manufacturing glass and similar products solves the problem through weekly sales meetings of operating managers, monthly executive meetings in divisions, bi-monthly directors' meetings in divisions, and a quarterly main board meeting.

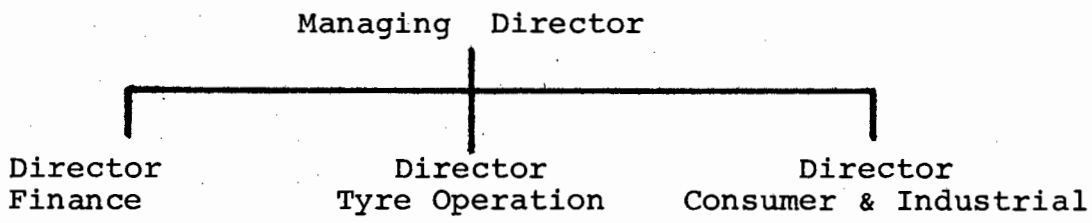
Another firm from the same sector has only broadly delineated four main areas of responsibility and authority; those of the managing director, the technical director, the sales director and the financial administration.

The answer given by an engineering firm takes the form of the following simple diagram :



In a firm manufacturing and distributing fluorescent light fittings, responsibilities and authority are defined and assigned by an executive committee consisting of the company manager and six members, directly responsible to the managing director.

A motor company also offers a simple diagram to show how it approaches the above task :



Another motor company replies : "An informal /sic/ organisation chart exists with specific responsibilities and authority attributed to all."

In the following case - a large departmental store - responsibilities and authority and working relationships are recommended by an executive committee to the board of directors, and then disseminated by the secretary to the managing directors of all subsidiaries.

Details of these findings are to be found in Table 34.

20.2 Planning Organisational Change

Before any change is effected, a review of the existing organisation structure, job definitions and personnel must be carried out. Then the specific structural and personnel changes required to convert the existing organisation to the proposed structure should be listed, and an inventory of available man-power resources drawn for staffing the new organisation. The organisational change should be designed so that advantage is taken of existing human resources.

A well thought out participative approach will overcome many problems which are usually encountered in introducing major organisational change. This approach allows any resistance to change to be uncovered and helps to change employees' attitudes towards the new organisation.

Naturally, not all changes require the use of a participative approach, for a lot depends on the individuals involved.

The literature studied does not suggest any hard and fast general rules for planning organisational change, because each situation requires a different approach. No matter how well planned the change may be, there is always, inevitably, resistance to it for reasons such as increased workloads, changes in status, new relationships, and so forth. Steps to reduce resistance to change must, therefore, be planned.

To sum up : the different phases involved in planning organisational change are (a) the scope and nature of the change must be identified as well as the attitudes and feelings of the personnel involved; (b) a plan for introducing the change must be developed (in many instances the participative approach is very successful); and (c) a plan must also be developed to reduce resistance to change without compromising the objectives of the new project.

To what extent do the South African planning companies pay attention to this stage of the planning projects? Every example cited below will confirm our statement above that each firm, each situation, requires a different approach.

A bank offers an example of how it identifies the scope and nature of the change and the feelings and attitudes of the personnel involved : "By the implementation of a management and organisational development programme. Feedback from personnel involved is obtained regularly by formal job analysis and appraisal in which personnel involved participate actively."

As far as their planning for introducing the change is

concerned, they say : "By anticipating new trends in the total environment and then by communicating to those involved in the form of a large group discussion (management conference)." Any resistance is overcome by communicating the major elements of the change to those involved.

Another bank solves all three problems through discussions during regular conferences at various levels. They also use management development programmes.

A coal mine's reply to this problem is refreshingly simple and reads : "In a relatively small organisation such as this one (about 700 employees), everybody in the organisation knows everybody else. Any organisational change is normally discussed fully with the personnel concerned. In general a fairly high degree of participation is achieved in decision-making, especially with the White employees. It is really only in the last 6 - 9 months that we have looked to our Black employee for any sort of participation.

Changes are implemented with the minimum of formalised planning.

Resistance to change is overcome as much as possible by putting the person concerned fully in the picture, looking for their adivce on the matter; and acting on their advice where considered practicable."

Another coal mine's approach consists of : (1) Assessing complaints, if received, and investigating failures; (2) Discussion; and (3) Instruction in the proposed methods.

"Dynamic organisational change has been achieved in

discussion groups which are established in accordance with an management development programme. Identification of scope and nature follows on analysis of performance results."

This as far as the first problem is concerned.

The comment of a diamond mine concerning planning to introduce change and steps taken to reduce resistance, is as follows : "Change model based on that (sic) Nederduitse Pedagogische Instituut - Thinking Process - where principles and concepts are weighed against current situation - Motivation Process - stating objectives - Commitment Process - plan, create plan situation - Implement - Evaluate - Recycle.

In thinking process (sic) individuals in discussion groups compare ideals, goals, concepts, etc., against current situation. Argument, discussion, involvement encouraged. Final decision, however, to move toward proposed change, that of chief executive."

A gold mine considers these problems in the light of a critical analysis of how each change affects every other process. Before changes are introduced the plans are explained to all personnel by means of free discussion in small groups to obtain acceptance.

A manganese mine approaches this problem by discussing the scope and nature of the change and by identifying the feelings and attitudes of the personnel involved. A plan for the introduction of the change is developed through progressive reviews, and the resistance to change is reduced through submitting plans to everybody involved so that their acceptance is obtained before implementation.

A group engaged in the manufacture of footwear and luggage and offering services in the fields of shipping, transport, tourism and hotels, uses the following technique :

"(1) Scope and nature of change and attitudes and feelings of personnel involved are identified by discussion with their immediate superiors and staff themselves.

(2) Plan for introducing the change is decided at the board meeting.

(3) The resistance to change is reduced by proper communication."

"We have an excellent team of managers forming a committee dealing with these matters", comments a firm from the building sector on the identification of the scope and nature of change and feelings and attitudes of the personnel involved. A plan for introducing change varies according to circumstances, and resistance to change is reduced purely through good internal communication and understanding of the firm's objectives.

A firm manufacturing glass describes its approach in the following simple terms :

"(1) By general discussions and suggestions at all levels.

(2) At meetings at various levels.

(3) Give all levels a chance of expression."

A plywood manufacturing firm uses the following method :

"(1) The personnel department has an office in each division; weaknesses are discussed with senior

management and plans are made to strengthen the organisation.

(2) No plans are developed for the introduction of the change.

(3) To reduce resistance to change the feelings of staff are investigated and any changes are fully explained."

A chemical firm discusses succession planning each year. Staff are assessed each year, and these assessments are discussed with the staff concerned. Organisational studies are also carried out from time to time. By planning retirements and early retirements this firm takes care of the human problems involved in organisational changes. An attempt is made to prepare staff for new responsibilities by training and transfer to other responsibilities. Changes are discussed with those concerned in an effort to convince them of the benefits of the changes in order to eliminate fear of insecurity because redundances are taken care of in a way which will not be hurtful to individuals.

The reply from a very large industrial holding company is : "This varies enormously through the Group", but it confirms that it pays great attention to the problems of resistance to change.

Another industrial concern identifies the scope and nature of change, as well as the attitudes and feelings of the personnel involved, through regular meetings between the managing director and the senior staff. Plans for introducing changes are developed by the managing director and the senior staff concerned.

"It is the function of the management committee to solve all problems involved in plans for organisation change", comments a firm manufacturing refractories. Quite a different approach is chosen by a firm manufacturing power and distribution electrical transformers. It employs consultants from time to time for advice in the area of planning for organisational change. Naturally, plans for introducing the change are devised by consultants in conjunction with management. No planning is done to reduce resistance to change. In a firm manufacturing structural steel, a personnel manager is in charge of that problem.

A large industrial concern defines the method used as follows : "The scope and nature of the change and the attitudes and feelings of the personnel involved are identified : (a) primarily through reports (and the manner these reports are handled) of performance against budgets, plans; (b) secondly through spot investigations on methods of work." A plan for introducing a change is elaborated by the chief executive.

The problem of how to reduce resistance to change is very difficult and depends largely on the ability of the chief executive to appreciate that there is resistance to change, and to understand its nature. This depends very much on the personality of the manager and his ability to manage people. Basically, we have to go through four stages :

Education (to enhance awareness, develop or lay psychology);

Policy formulation (within our resources)

Resource allocation;

Implementation allocation.

Compare this with the following approach of a firm which manufactures bolts,rivets and similar items. Its management calls the affected personnel together, explains the changes, and gives reasons for promoting such changes. Attitudes and feelings are almost invariably shown at such meetings, and are acted on at the time. The plan for introducing the change is developed by making sure that all who are affected by the change are aware of it, and by preparing written instructions on a basis of a time schedule. To reduce resistance to change meetings of senior personnel are held at fairly frequent intervals with a view to keeping them abreast of any changes of consequence in the company. The works' personnel are kept informed of changes, policies, etc., through the medium of a works' council which is chaired alternately by the general manager and a works' representative (hourly paid personnel). Communication with non-White employees is carried out through a liaison committee, consisting of White and non-White members.

The method used by a large conglomerate for planning organisation change is as follows : "Organisational change is planned by involving as many of the people that will be involved as possible, thereby gaining their participation, and reaping the maximum benefit from their experience."

A firm manufacturing motor vehicles reports :

"(1) An assessment of the change and the requirements which are generated is made. Against these requirements the most appropriate people are related and appointments are made, after full consultation with affected parties. Personnel plans to ensure continuity is (sic) constantly

being developed.

(2) The nature and timing of the change is related to the availability and suitability of the people.

(3) The techniques of communication, participation and consultation are being used to the greatest practical extent."

"Involving people", is the simple answer from a firm manufacturing paper and a printing and publishing firm illustrates its approach to the planning of organisation change as follows :

"(1) Assess promotability potential of lower management levels for higher degrees of responsibility and authority.

(2) Train personnel.

(3) Communicate management plans throughout the staff."

A firm engaged in the distribution of newspapers, magazines, books, stationery and electronic machines proceeds in the following manner : The management calls in all managers involved, suggests the change and asks for full information on ways to achieve the change with the full understanding and cooperation of employees. A plan for introducing the change is developed through seminars, training sessions and explanatory memoranda from the head office. To reduce resistance to change the management calls for criticism of proposals and attempts to answer them in detail.

A large departmental chain solves the problems discussed through its executive committee but participation of people plays an important role in the process. On the other hand, a firm producing sugar has the following method :

"(1) Organisation of change is developed by each division's executive officer; changes at senior level are decided by the chief executive officer in consultation with a committee of the parent company's board.

(2) Attitudes and feelings are (or should be) monitored by personnel department, who keeps senior executives informed."

Another sugar company attempts to solve the problems described as follows : "The scope and nature of the change is decided in outline by discussion between top line management and specialist staff. The implications are discussed with middle management, and, if appropriate, craftsmen to win support for the changes at their operating level. Due consideration is given to the attitudes and feelings of personnel involved and minor modification may be made to accommodate them providing the main objectives are agreed and maintained.

To develop a plan for introducing the change - this has been covered above. The plan is developed in detail through discussion with those concerned to achieve broad objectives.

To reduce resistance to change - this is done through discussion and persuasion to get all concerned either to agree to the change or at least to accept the change for a trial period."

The last two examples come from two major oil companies. The first approach is described as follows :

"(1) The strategic plan highlights future major short-

comings in the existing organisation. Action would be along the lines of communicating the needs for change with those affected or having them identify the needs for change themselves and subsequently involving them in preparation of corrective plans. Full involvement will ensure adequate feedback with regard to feelings and attitudes of personnel affected.

(2) (a) Then the extent of change necessary is evaluated in the light of company resources and the anticipated future operating environment.

(b) A plan is developed to achieve the desired changes.

(c) The plan is implemented in accordance with a predetermined timetable for action.

(3) Those affected should be 'sold' on the need for change. This requires their involvement in

(a) identifying problem areas;

(b) drawing up a plan for action;

(c) implementing this plan."

The second description reads :

"(1) We continuously change our organisation. It is seen as a natural part of organisational development. Staff must accept this, and by and large individuals do not loose as a result of change.

(2) Usually a special study group is made responsible for the development of the plan to introduce change.

(3) As stated above the whole process of organisation change is considered to be part of a continuing routine. Staff who cannot adapt to this will, naturally, be unhappy."

From these last two descriptions one can clearly see the high level of sophistication of the planning process attained by these two oil companies.

The examples above were selected to show as many different approaches to the planning of organisational change as possible and to illustrate the level of awareness of South African firms toward this last planning stage. About 50% of all reporting firms do not plan for the organisational change.

20.3 Planning Step No. 7 : How Plans for a Suitable Organisation and Staff are Developed - Validity of Our Assumptions

The procedure for testing our hypothesis on this stage of the planning process follows the same pattern as in previous stages. Questions that cover the individual steps of this stage are reproduced below in the form of a summary, together with the replies received. The majority of affirmative answers on individual steps will again be taken as evidence of the validity of our hypothesis.

Questions of the Questionnaire	Positive Answers (100% = 79 Participating Firms)
40. To implement the plan does your firm develop a suitable organisation and staff? (Table 34)	63,3%
41. Does your firm have an organisational chart? (Table 34)	62,0%

The above percentage of affirmative answers received from all participants are taken as evidence that the

two planning steps described above are carried out by them as found applied by the generally accepted conceptual planning model and that, therefore, our hypothesis holds good.

Naturally, as in other Western countries there are also South African firms that do not have any organisational chart. In section 20.1 we have analysed the answers received to our question No. 42 and have offered examples of how such companies define and assign the responsibility and authority, and how they establish working relationships. No summary is possible in this case, and we can only conclude that they succeed to function and operate as do their Western counterparts. How efficient and effective their operations are, could not be determined, but the majority of them have relatively simple organisational structures and are of smaller sizes. Besides these factors they undoubtedly operate in a highly beneficial environment.

As far as planning of organisational changes is concerned (Questions Nos 43(1), (2) and (3) of the questionnaire), the participating firms use, in general, a similar approach to that found applied by other Western countries. Before any change is effected, a review of the existing organisational structure, job definitions and personnel is carried out, and the required organisational changes are designed (by about 50% of participating firms) so as to take advantage of existing human resources. Their different methods of carrying out these changes have been amply illustrated in the preceding section. We posit that the depth of these methods and their character are dictated by (a) the organisational complexity and size, and (b) by the respective management styles.

21. REVIEW AND REVISION OF PLANS

21.1 How Plans Are Reviewed and Revised by South African Planning Firms

The majority of all participants (67 of the 79 firms that have completed the questionnaire) report that they review, and if necessary, revise their long-range plans annually. Long-term in this context signifies the planning period from three to twenty years.

Companies who consider four- to five-year planning horizons as medium (see Table 5) or short-term, review or revise their plans quarterly on a formal basis and, in several cases, continuously on an informal basis. Some review and may revise the whole long-range plan annually, but audit the profit position every six months. Companies with a planning horizon of two- to three-years seem to be reviewing and revising their plans twice a year.

One company from the printing and publishing group reviews its three-year plan if there are major external or internal changes only. In some cases operating plans are reviewed and eventually revised once a year and the long-range plan itself every second year. One oil company reports that it reviews its five-year plan - considered as long-term - once a year but more frequently during its introductory stage.

In one case, a tobacco and match company, a five-year plan is reviewed and eventually revised on a quarterly basis. Short-term plans are generally reviewed quarterly, but two companies have reported that they review such plans once a year.

No specific industry pattern could be traced, and the general rule for all long-term planning firms is to review and revise their long-term plans on a yearly basis which corresponds to the pattern found during our study of literature on planning and planning practices overseas. The respective overview is offered below.

21.2 Planning Step No. 8 : How Plans Are Reviewed and Revised By South African Planning Firms - Validity of Our Assumptions

Question of the Questionnaire	Positive Answers (100% = 79 Participating Firms)
A(6) How often is the plan revised? (Table 6A)	84,9%

11 Firms have not answered the above question and belong to all industrial groups. There is a strong possibility that these firms do not review and revise their plans.

The above percentage is again taken as strong evidence that our hypothesis holds good as far as the application of this step by South African planning companies is concerned.

22. COMPARISON OF THE PRESENT PLANNING METHODOLOGY AND THE PLANNING PROCESS APPLIED BY SOUTH AFRICAN PLANNING FIRMS

22.1 Conclusion

Our tedious, question-by-question analysis has brought the evidence that South African planning companies use in their long-range planning efforts, the same framework as found in our study of literature on planning and of planning practices in other countries. The conceptual model applied encompasses the following steps :

(1) Planning and organising the planning effort.

(2) Defining planning premises.

(3) Determining the company objectives.

(4) Developing policies and guidelines for action.

(5) Developing implementation plans.

(6) Coordinating and controlling planning.

(7) Developing suitable organisation and staff.

(8) Review of plans.

All these steps can be traced in the planning process of South African firms, and this fact offers evidence that our main hypothesis holds true. However, some failings and inadequacies have been detected and their nature has been discussed, and will be summarised later. In general, our analysis has revealed the fact that there is a general lack of depth in the application of the individual steps of the conceptual planning model outlined above by South African planning companies.

23. FUTURE CHANGES IN THE PLANNING PROCESS AMONG SOUTH AFRICAN COMPANIES (Question A of the Questionnaire)

As in other similar studies, it is difficult to obtain a clear picture of changes South African companies intend to introduce in their planning process in the future. One would be tempted to say that, once formalised planning has been established, there would be a natural tendency toward developing this function and refining the present methods in the future. The extent of such improvements would, naturally, again depend on the kind, size and complexity of the firm, as well as its planning needs. The findings contained in Table 35 do indeed confirm such a tendency among South African firms, which is again illustrated below by means of examples from the respondents' replies.

The decision by a bank to establish a permanent corporate planning unit surely indicates this positive attitude? So does the case of another bank that wants to orientate itself more towards computerised model building and instal a management information system which would result from this approach. A coal mine plans to introduce the technique 'management by objectives' within the next couple of months, on a group basis. However, they think that this change would have a great effect on short-term rather than on long-range planning. Another coal mine states that its group intends to introduce, in the near future, a more formal approach to strategic planning.

A manganese mine shows a positive attitude towards long-range formalised planning based on a five-year forecast which it is to introduce very soon. A large industrial company, which introduced formalised planning based on a five-year plan in 1970, replies as follows : "We are trying to make our approach as fluid as possible and are continuously looking for opportunity to improve and modify our system, and

to coordinate it more effectively with other management subsystems."

A firm belonging to the beverages and hotels group accepts the need to mechanise its information system, and to integrate even further its marketing, sales and financial planning basis. A company from the building sector does not intend, on the other hand, to change its present approach to planning.

The importance of clarifying company objectives is mentioned by a chemical firm as an aspect which will definitely require more attention in the future.

An engineering company intends to develop and refine the planning process carried out by its executive committee with the aim of using better data to achieve greater depth.

"Long-range planning methods are currently being developed into a more comprehensive and formalised system", reports a clothing retailing chain store. A large firm, manufacturing refractories and other similar products, expresses its positive intentions in the following terms : "We are now at the stage where we must think longer terms, if possible, and tentative discussions have been held amongst senior administrative management regarding the setting up of a corporate planning division which will in all probability consist of one man only at the outset."

A progressive industrial group with a separate planning unit, into which formalised planning was introduced in 1968, intends to split the strategic and budgeting plan of the cycle, and to make a greater use of 'number cruncher' computer programmes to enable them to evaluate alternatives more easily. A similar, but much larger concern with planning experience in short-term planning going back to

1960, and that has just completed its first attempt at long-range planning, admits frankly that this attempt was not perfect and a number of changes are, therefore, required.

A long-range corporate study is being developed by a firm manufacturing tyres, tubes and industrial rubber products, and a motor company is about to finish the implementation of short-range planning, and when this is fully implemented and working satisfactorily, it intends to introduce a five-year planning system. The use of more sophisticated techniques in relation to long-range planning, expecially in the fields of OR and EDP is envisaged by a company manufacturing motor vehicles.

An engineering concern states : "We are always looking at possibility of improving. As we enter markets more amenable to long-range planning we use it. We are trying to find methods of reducing the unknown as far as possible."

In one case, a firm from the printing and publishing sector, instead of increasing the planning horizon, a five-year plan has actually been reduced to three, with a plan that is updated annually. A large sugar company, on the other hand, has written as follows : "Planning in greater depth at each level of management is to be undertaken this year." One oil company intends to broaden scenario planning with less detail beyond two years ahead. It frankly admits that it has been guilty of too much detail in long-term planning. Because the whole fabric of their business is changing, another oil company comments on the need for more flexible planning systems in the future.

By and large, listening to South African executives and analysing their replies, one cannot say that South African planners are overenthusiastic about formalised planning.

Although no outright negative attitude could be identified, they are more prompted to introduce formalised planning by sheer necessity than by innovative enthusiasm. Four companies intend to establish, in the near future, separate planning units, while twenty companies find it necessary to improve their already established formal planning systems (Table 35), all of them compelled by complex environmental forces and organisational complexities.

24. HOW MUCH PLANNING IS ENOUGH FOR SOUTH AFRICAN PLANNING COMPANIES? (Question B of the Questionnaire)

In formulating our question above, our aim was to discover if South African firms had some ideas of the amount of planning necessary for their respective companies. The intention behind this query was to find out and highlight the extent to which the South African planners have acquired adequate and proper insight into the planning concepts and methodology of planning.

The answers received make most interesting reading, and an analysis of them seems to indicate that only a very small handful of South African planners understood the correct meaning of this question. To illustrate the type of answers given, we offer below some comments made by our respondents.

For example, a bank comments : "No amount of planning is ever enough - planning must be effective in terms of successful achievement of objectives and useful for managers in terms of making strategic decisions."

One coal mine considers its current planning practice is adequate, except that a more formalised approach is necessary with each person responsible for planning going into more detail. It also adds that it is extremely difficult to do much advance planning at colliery level with the information at present available to them.

A similar answer is given by a diamond mine which finds its present planning system adequate. A gold mine reports that, due to the constantly changing availability of ore, a broad outlook has been adopted in planning in the medium- to long-term, detailed planning being done for the month ahead.

A manganese mine, explaining its view on how much planning is necessary, comments as follows : "In the mining situation, the optimum plan is always changing. Constant review within a longer range forecast is essential".

A large financial industrial group considers that this varies from division to division. A mine must usually plan for its life, whereas a trading situation may find a year too long a period for effective planning.

It is difficult for a group engaged in the manufacture of glass and similar products to say how much planning is enough for the group in view of its size and diversification of products. A firm manufacturing plywood, although it is about to introduce formalised, long-range planning, comments : "Not too much time must be spent on planning with the result that the daily activities get neglected". A chemical company states : "Five - ten year long term plan, plus annual budgets".

A clothing company indicates in its answer the fashion element to be responsible for planning for only one year ahead. For a firm manufacturing aluminium ware, the amount of planning as practised today (five-year plus one year) is amply sufficient.

The availability of raw material resources determines the amount of planning for a firm manufacturing refractories; in some cases it may be a period of twenty years or more. Another firm from the same sector finds the question impossible to answer and remarks : "Surely enough to achieve one's objectives (whatever they may be)."

A firm manufacturing bolts and rivets gives the following answer : "What we do now is enough. If we have cause to

require more (or less) data, we shall consider adding (or deleting) it."

An engineering firm, because it performs a service, finds its two-year planning horizon enough, stating : "Planning must enable (1) the individual business managers to better understand the key requirements for success in their business; (2) group to choose 'between' well thought out alternative strategies for each business. When this will be achieved our planning will be sufficient." It also suggests : "(3) Sufficient written commitment to enable management control; (4) Enough to satisfy the chief executive that his performed strategies (his plan) can and are being implemented overall."

A large industrial concern feels that, at present, its planning process, which comprises essentially a short-term (one year) and longer-term (five-year) plan is sufficient for the company at its present stage of development. It believes that planning is an evolutionary process, like the growth and development of a company, and that, in a few years time, its planning requirements will most certainly change.

For a motor company, sufficient planning means trading budgets and financial projections, while a company manufacturing tyres, tubes and industrial rubber products comments : "Quality of planning more important than quantity; always striving to improve quality without increasing quantity."

A firm manufacturing metal closures, plasticware and similar products, expresses the following view on the amount of planning judged necessary for its purposes : "In details annually, cash flow three years."

For a printing and publishing company there can never be enough emphasis on forward planning. As profits will allow, more expert staff assistance will be built-up to back up the intuitions of line management in planning.

"Due to the size of the group and its dependence mainly on sugar, considerable effort in planning is necessary to maintain growth through diversification", is the explanation given by a sugar company regarding the amount of planning judged necessary for its needs.

The last comment, made by an oil company, illustrates best what is meant by the amount of planning sufficient for a company : "Company planning is motivated specifically for the degree to which management desires to see the effect of present and future actions set out in concrete terms (in so far as this may be possible). The amount of planning considered necessary is determined by management's view of the relative importance of those facets of the company's operations being planned."

25. VALUE OF PLANNING - THE COST/BENEFIT RELATIONSHIP

(Question C of the Questionnaire)

While it is simple to state that without planning there is no growth or progress, and as a function is is, therefore, necessary and important, it is, however, difficult to measure and evaluate the cost/benefit relationship and to be entirely objective about the value of planning. For these reasons, any question about the benefits derived from formalised planning must receive only broad generalisations for an answer. Too many factors are involved, many of them being outside the planning process.

We shall attempt to draw some conclusions from the answers received on the value derived from planning by South African planning companies, but they cannot be considered as absolute.

The first comment, from a bank, reads : "We do not believe this can be quantified by anyone - consider opportunity cost etc. in not planning in sufficient depth, etc., also time spent on planning by managers." Another bank seems to know the cost of its reorganisation for planning, and it can relate the cost to a variety of efficiency indicators. However, it adds that non-financial benefits are more difficult to measure.

A diamond mine reports as follows : "Extremely difficult to evaluate. Budget of planning unit integrated in computer services, and benefits to organisation cannot be computed."

A gold mine also seems to know the cost/benefit relationship in its planning process : "Planning has enabled a control to be kept on the cost structure and ensured that facilities are available when required. It also creates

job satisfaction at lower levels." A firm producing fertilizers indicates that better control has definitely been obtained from their formalised planning process.

An interesting comment on the cost/benefit relationship, made by a company distributing chemicals, is expressed in the following terms : "What we do is essentially to avoid continuation of unprofitable activities in ignorance of the forecast position. It also permits action to prevent escalation of costs through undue growth of numbers."

A firm manufacturing electrical accessories and appliances assumes that benefits derived from formal planning are (a) team spirit, (b) profit and bonus, and (c) a feeling of belonging, whereas cash flow analysis and profit forecasting are the two main benefits derived from formalised planning by a firm manufacturing refractories.

The following interesting comment comes from an industrial concern : "But we are increasingly aware of the benefits to management of the data available in the plan, which far outweigh the cost. As an example, we know what our capital requirements are in advance, and can often buy plant advantageously as a result." An engineering firm has answered in much the same vein : "Every indication is that considerable improvement in performance has been achieved."

A large industrial concern with experience in formal planning since 1960, cannot, even at this stage, quantify the cost/benefit relationship in its planning process, but it has no doubt that it is beneficial. A paper and pulp company comments as follows : "Better performance is in some cases directly attributable to planning." Finally, budgetary control seems to be the sole benefit obtained from formal planning by a firm manufacturing

plasticware and similar articles!

On the basis of this cross-section of opinions one could, obviously, conclude that the planning process has proved itself to be an essential factor in the progress of successful South African companies. Yet, whilst its value cannot be quantified, a formally coordinated and comprehensive planning process has definitely had a beneficial effect on their performances. But one aspect must not be lost from sight. Planning being only a part of the overall management function, depends in practice on a high standard of management. This standard is without any doubt, improving, and one could even posit that the use of long-range planning improves management standards.

26. DIFFUSION

26.1 Factors Affecting the Diffusion of Formal, Long-Range Planning

There are three general dimensions to be considered in this enquiry :

(a) the behaviour of firms in time;

(b) the behaviour of firms in space when internally stimulated; or

(c) the behaviour of firms in space when externally stimulated.

The primary criteria for behaviour of South African firms (the adoption of formal, long-range planning) to be predicted would be the diffusion of literature on planning, information diffused in courses of educational institutions or information obtained from other sources (from headquarters in the case of multinational and international firms), and finally the influence of internal and external factors such as, e.g. financial risk or opportunity or organisational complexity.

A secondary criterion would be the compliance by South African firms with the instructions or advices received from the above sources or the necessity brought about by the above mentioned internal and external factors. The chief question throughout such a study would be : "What is the chief relation between diffusion and each of the above factors?" This question could be broken down into three subquestions : (a) What is the shape of the curve relating them?; (b) How good is the fit of this curve to these data?; and (c) What is the

statistical significance (probability of occurrence) of that closeness of fit?

A diffusion index, defined as the proportion of firms applying formal, long-range planning in a sample of South African firms could then be developed into a useful prediction index of diffusion of this new managerial technique.

The next aspect could then be studied and the following questions would be asked : (a) How does diffusion depend on the number of firms in the selected sample? and (b) What is the shape of the curve relating the diffusion index to the size of the sample?

The time factor in diffusion would be the next stage of our analysis which would lead to questions such as : (a) How does diffusion depend upon the time elapsed?, (b) How does diffusion tend to grow? and (c) What kind of curve does this growth represent?

Then the factor of space in diffusion would be described by answering the following questions : (a) How does diffusion depend on the distance between the source of information and South African firms? and (b) What kind of curve fits this relationship, if it exists?

The analysis of the stimulation factor would be the next step of our analysis. How does diffusion depend on the strength of internal or external stimuli? What kind of relationship could be described here? What is the curve or curves which would fit these relationships?

The last aspect to cover would be the value or the motivational factor in diffusion. How does diffusion depend on the firms' general policies, or stated

differently, how do the norms of values adopted by South African firms affect and influence the diffusion process? What is the curve fitting this relationship?

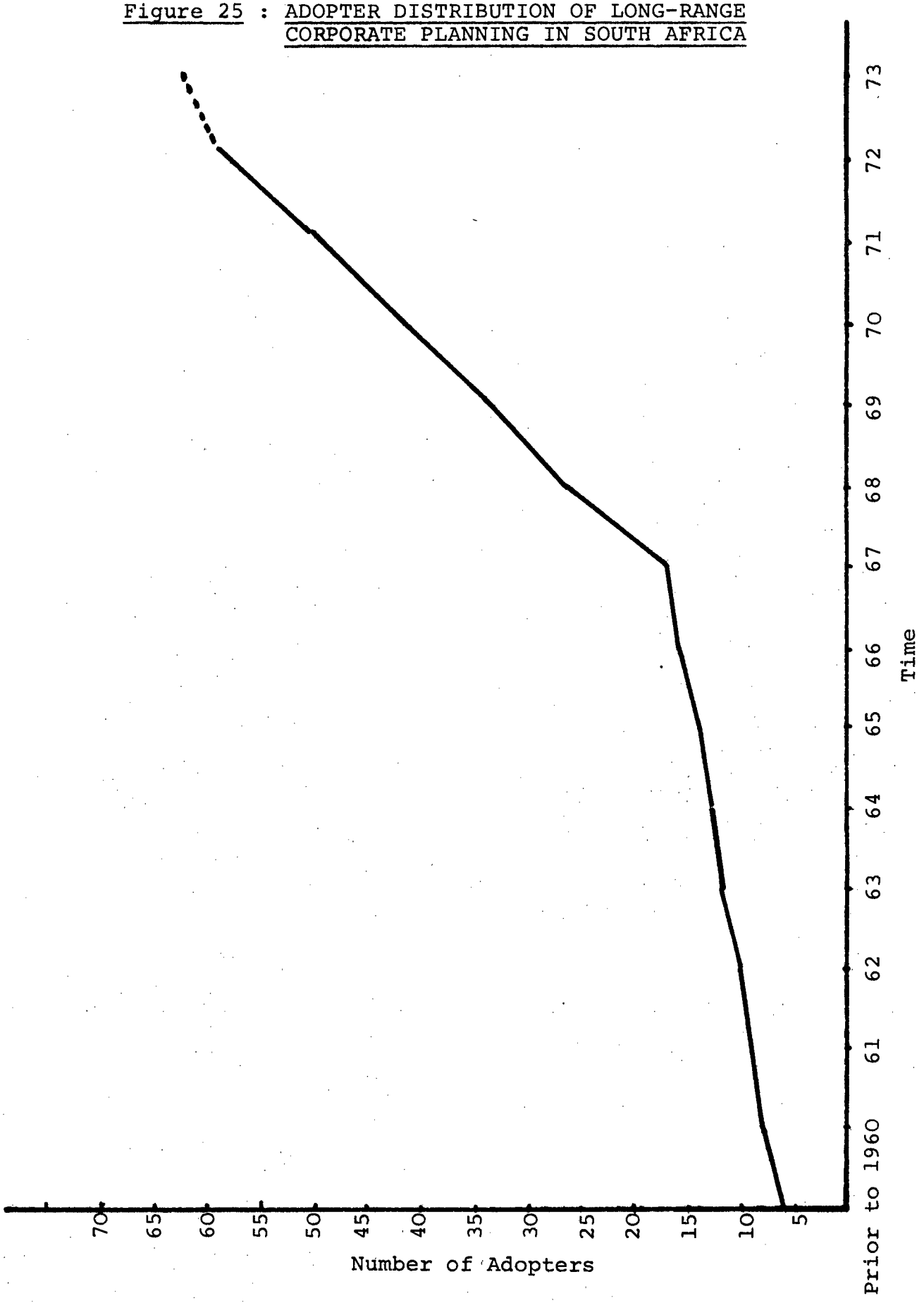
Each of the above relationships is highly interesting and worthwhile of a future detailed study which could lead to the formulation of laws predicting the diffusion process of formal, long-range planning among South African firms. Such a study, however important it may be, is, firstly, beyond the scope of our present already ambitious work and, secondly, the appropriate statistical techniques cannot be applied because our sample has not been selected at random.

26.2 Diffusion of Formal, Long-Range Planning Among South African Firms

Our present analysis allows us, however, to state that the introduction of formalised company planning in South Africa seems to have followed the same pattern as in other Western countries. Figure 25 shows this pattern.

The first adoption took place around 1960 (although some companies claim having introduced formalised company planning as far back as 1948), and then it grew until the end of the 1970's. This new managerial technique is gaining momentum at present and, as in other Western countries, some of the leading South African firms are probably reaching the point in their planning efforts where a reassessment of past efforts and new needs will have to take place, as indicated by several examples in our analysis. Naturally, this cannot happen without the realisation by South African planners of the potential offered by formalised planning on the one side and its limitations on the other side.

Figure 25 : ADOPTER DISTRIBUTION OF LONG-RANGE CORPORATE PLANNING IN SOUTH AFRICA



27. EXTENT OF THE APPLICATION OF LONG-RANGE PLANNING IN THE WORLD

How do South African planning efforts compare with worldwide trends? Several recent surveys enable us to determine more or less precisely the extent of long-range planning among the following nations : French, German, British and American. Brief comments will now be made on progress in these countries.

(1) France

Professor Hans Schoellhammer has recently carried out a survey, the results of which were published in the periodical revue, "European Business"[18]. This survey covered 390 firms chosen from 500 companies, the names of which appeared in the periodical, "Enterprise". The findings of this survey show that from 371 responses received, about 100 firms, or approximately 30%, use long-range planning. This figure represents a little more than a quarter of large enterprises, and about a twentieth of medium-sized firms. Their plans cover, in general, five to ten years, but in some cases up to 20 years. One of the conclusions of this survey is that long-range planning covers different areas of firms' activities, but with the emphasis on long-range planning in research and development.

(2) Germany

There is an excellent survey by the Institute fur Wirtschaftsforschung, Munich, covering 1 600 companies. It would appear that about 5 - 10% of companies surveyed have long-range coordinated plans covering the majority of company functions - of which about 10% are

long-range investment and financial plans. Large firms represent about one-third of the sample.

As far as the proportion of companies having established long-range planning is concerned, there appears to be no significant difference between France and Germany, the proportion of large companies being between one-quarter and one-third.

(3) Great Britain

According to the study by Professor B. Denning, of the London Business School[19], the number of large firms that have had established plans for more than five years has considerably increased in the last few years. He estimates that about one-quarter of 300 very large firms applied medium- to long-range planning in 1967.

(4) United States of America

In the U.S.A. about one-fifth of the total number of companies plan for five or more years, according to periodical surveys carried out by the Stanford Research Institute, and this proportion is steadily growing.

It is an undeniable fact that long-range planning is used to a much greater extent in the United States of America than elsewhere in the world. It is characteristic that in 1947 only 20% of companies were forecasting their sales for more than three years ahead, and that this percentage had risen to 90% in 1966 according to some estimates. One author, B. Scott[20] estimates that since 1953-54 long-range planning has become a management technique equivalent to other traditional instruments.

But this technique is still of a very experimental and partial character, as has been quite clearly shown in a recent survey carried out by Professor K.A. Ringbakk of the Stanford Research Institute among 40 large American companies[21].

28. CONCLUSIONS

28.1 Summary of Our Aims

At the outset of our study, we stated that our objectives were to establish :

(1) How South African firms carry out formal, long-range planning.

(2) Whether there is a correlation between the adoption of formal long-range planning, the length of the planning horizon on one side, and factors such as financial risk, opportunity and organisational complexity on the other side.

(3) How the diffusion of formal, long-range planning takes place among South African companies.

(4) The intended changes of the planning process.

(5) How much planning is enough for South African firms.

(6) The cost/benefit relationship of planning in South African companies.

(7) The gaps and inadequacies of the planning process applied by South African firms.

We have also made some reservations about conclusions to be drawn from our findings. Although the actual sample was quite large because of the fact that the 81 responding firms included eight conglomerates representing alone 508 manufacturing and service concerns, the answers and comments received could be verified in only a few instances, and this aspect should not be lost from sight.

28.2 How Formal, Long-Range Planning is Carried Out By South African Firms

As planning concepts and methodology have been adopted by South African firms from American and British sources, the same shortcomings can naturally be traced, as found during our survey of literature on planning and planning practices of these firms (see Section 7.10).

Furthermore, our study of planning methodologies and practices among South African firms has shown that they do not adhere to the same extent as firms overseas to the framework outlined elsewhere, and that this lack of depth amplifies the above shortcomings. On the whole, formal, long-range planning among South African firms is neither as well developed nor as fully accepted as it is in Europe. Too many South African companies still develop functional and divisional plans only, and in many instances objectives and action programmes are not being developed. 'Planning', as found in many companies, is merely a financial projection resulting in budgeting only.

As to the question why South African firms are adopting formal, long-range planning, a number of common factors emerge such as rapid internal and external change, increased competition, trend towards large units and complexity through vertical and horizontal integration, changing relationship between people and authority, and last but not least, a growing trend towards a more participative style of management. Old methods cannot cope with these new forces and a more formal approach to planning is sought.

Yet the progress realised to date is poor, as illustrated elsewhere in this study. There are many reasons for this situation and they vary, furthermore, from company to company. Too few firms realise that planning is a philosophy, a way of life that must be actively supported by top management and accepted by everybody in a firm. A special climate must be created, which we have termed 'planning climate', without which there cannot be successful planning. In only a few cases are boards of directors involved in the planning process. In some cases even chief executives do not understand fully the planning concept, nor do they accept the need for formal planning.

28.3 Correlation Between the Adoption of Formal, Long-Range Planning and Financial Risk, Opportunity and Organisational Complexity

We have hypothesised that the introduction of formal, long-range planning and the length of the planning period becomes justified under conditions of high financial risk or opportunity, or organisational complexity. Degrees of correlation between the adoption of formal, long-range planning and the factors mentioned could not be established as our sample has not been selected at random. To illustrate this relationship we have compiled a list of our respondents and have assigned to each of them various ranks for these factors. This chart indicates and confirms that either one of the described conditions, or a combination of them, can be traced in each case, and this finding is taken as strong evidence for the suggested hypotheses. The greatest influencing factor for the adoption of formal, long-range planning seems to be the degree of organisational complexity,

the second highest rank is taken by the rate of technological change, and the degree of capital intensity takes the third place.

To produce greater effectiveness or efficiency in the fact of the conditions described above, formal, long-range planning is adopted, despite the fact that this managerial response to these particular business conditions represents a supplementary investment of money and time.

28.4 Diffusion of Formal, Long-Range Planning in South Africa

Only a few companies attempted to formalise their planning prior to 1967. In the majority of them, the accountant - a key executive - was interested only in short-term planning for profit. His attention was focussed more on figures to be achieved than on means of attaining them. Probably only a couple of planning departments were in existence around the above date, and relatively few companies were interested in the planning concept.

During the last three to five years, South African companies have begun to pay increased attention to the development and organisation of planning. We can say, by way of generalisation, that this interest has followed a path examplified in the commonly observed S-curves. With the diffusion of the planning concept due to the ever-growing literature on planning, seminars on planning and partly to the activity of management consultants the first upswing took place between 1960 and 1967. The second upswing reached its peak by 1972 and a third wave is at present building up. It is interesting to note that the growth described is nearly identical to the pattern of diffusion of formal,

long-range planning in the United States of America between 1960 and 1970[22]. The present situation in South African firms seems to indicate that the practice of formal, long-range planning will grow as the forces underlying it are growing too.

28.5 Intended Changes in the Present Planning Process

As the tempo of change grows so will South African firms be compelled to adopt formal, long-range planning if they wish to survive. Furthermore, as B. Taylor and P. Irving very rightly state in their article, "Organised Planning in Major U.K. Companies"[23] a new generation of managers is trained and educated in a vastly different environment to that of their predecessors, and this will result in a new attitude towards a more systematic, organised, formal planning. The present gaps will be filled and inadequacies will be corrected as the education of managers will be developed.

There are unmistakable signs that these trends are already developing among South African companies. Twenty participants of our survey are at present improving their existing planning processes, while four firms are introducing formal, long-range planning.

28.6 How Much Planning Is Enough for South African Firms?

It is difficult to assess, by way of a summary, the different attitudes found among our respondents to the question of how much planning is enough for them. The fact must be stressed, however, that the diversity of answers and comments received on this aspect stems mainly from misunderstanding, since 'formal, long-

range planning' is new.

At present many South African firms may be declaring 'we have introduced a formal planning system with a planning horizon of five years', without realising that the only formalised planning in their case is the consolidation of annual budget figures. But even this situation will pass, and the growing awareness of the gaps in and inadequacies of the existing planning processes, and the new generation of managers instructed in the requirements of a formal, long-range planning process, will find the correct answer.

If we accept the view that South African managements show a tendency to prefer methods used in the United States of America, then it is quite justified to predict that formal, long-range planning will grow in South Africa in the coming years.

28.7 Gaps and Inadequacies

Our study shows inadequacies in many of the planning systems analysed. These findings could be summarised as follows :

(1) In spite of growing acceptance by South African firms of the function of formalised planning, this process is still in the early stages of evolution. South African planning companies do not pay sufficient attention to the development of planning premises, as well as economic and industrial forecasts and do not realise the importance of developing and evaluating alternative directions. Long-term objectives are not clearly formulated; objectives are determined mainly in the financial areas but are

neglected for other areas of equal, if not greater, importance such as industry, market, customers, product and service, social responsibility, geographical growth and size.

South African planners neglect to elaborate general and specific policies, as well as implementation plans including subobjectives, derivative strategies and detailed operational plans for functions other than finance. Their overall plans in many instances are mere financial projections, and operational plans are not integrated. Although nearly all of them use budgetary control, the majority among them do not realise its importance, and practically no attention is paid to human relations' techniques in the elaboration and application of this controlling tool. Many of them also fail to establish a suitable organisation and staff for planning, and the great majority do not even elaborate an organisational chart.

By and large, most of the planning carried out by South African firms resembles, therefore, traditional budgeting, as shown by many outlines of a five-year business plan. Such plans have a strong financial orientation, and the firms using them do not realise that mere financial projections must, perforce, be questionable if the future behaviour of all factors that underlie these projections is not adequately considered.

(2) There is a great difference in planning practices among South African firms, as amply illustrated by examples cited in our study. While some firms have complete and comprehensive plans, the

majority of companies have budgets extending only one or two years into the future. This may be due to the fact that 66,6% of South African planners come from an economic/accounting background, and do not possess the required knowledge and attributes found essential for successful professional planners as outlined in section 11. Naturally such planning must be characterised by an overemphasis on the financial and quantitative side. Since, in such cases, the major factors behind growth and sales are inadequately considered, such planning amounts to a meaningless numerical exercise.

(3) Planning horizons are of different lengths. The majority of South African planning firms plan for a period of five years while a small number of them plan for periods from seven to fifteen years. In some instances a lengthening of planning horizons is intended, but in others planning horizons are shortened. The decisions taken in this respect seem to be largely arbitrary.

(4) Many companies do not analyse in a systematic way, all the interacting variables that make up the total planning system before taking planning decisions.

(5) There is a definite inadequacy in information systems of generating data concerning internal and external factors. The analytical techniques used are poor, and there is, in some companies, a definite need for the mechanisation of some of the planning tasks.

(6) There is also an indication that computer planning (in the great majority of cases financial computer planning), will be used in the near future to a greater extent, despite the lack of planning maturity.

(7) By and large, managements do not appreciate the value and potentials inherent in formalised, systematic planning. In addition, because of a scarcity of professional planners, managements are not always able to measure the results of planning.

In some cases, there is even a definite reluctance to undertake a long-term commitment. This reluctance is strongly underlined by the following two views on long-range planning :

"Although we know of a few companies who successfully operate a formally promoted strategic plan, and whilst we do concede that a formal approach can assist top management in clarifying its course of action, we are not enamoured of a formal approach because we believe that if it is too formal the whole exercise is too cumbersome, inflexible, and very often grinds to a halt or is out of date before it has reached its logical conclusion. In essence, we believe that those few companies who successfully use a fully formal approach would have been successful in any case without all the formal paraphernalia because the essence of success stems from the calibre of the chief executive and the senior executives around him and not from all the complex gimmicks and formalities which surround the concept of 'formal corporate planning'. We believe that the line of approach taken must be the simplest

which can possibly be devised to give a company its guidelines for advancement, and in all but the very largest companies, of which South Africa has relatively few, the line of approach can be very simple."

(A paper and pulp company)

The second view on long-range planning comes from an engineering firm :

"In short, our long-range planning consists of the maximum attention we can give to finance whilst leaving the maximum flexibility in the operating areas to pick up opportunities as they arise. . . . We are, obviously, conscious of a need to improve certain areas of our planning and productivity but having tied with some of the 'faddist' techniques, we have been somewhat disillusioned and have come back to the basic feeling that common sense is the best guide but, nevertheless, we still read all the books and we still go to listen to the better visiting Consultants so that we have some ideas what is going on. . . . The more sophisticated theories which can undoubtedly be applied in the very large companies with a relatively simple basic product are difficult to apply in a series of small companies with individual personalities in control of them. Different people achieve acceptable profit results by different means and we have found that some people achieve excellent results while apparently doing something which the Consultants will tell you is quite wrong. Others knowing very little of the latest techniques operate a common sense equivalent of, say, Management by Objectives, and obtain excellent results. In other words, our experience is that nothing succeeds like basic practical Management and probably the best place to learn this after the fundamental knowledge has

been obtained is naturally running an organisation and being responsible for handling people and making money."

Yet, in spite of all these failings and inadequacies and negative approaches, there is a clear indication that the various aspects of the planning process are being given greater attention than five years ago. Furthermore, there are, and always will be varying standards of management, and so there will always be different standards of planning. But, as the former standards progressively improve, so too will the latter.

28.8 Some Basic Conclusions May Now Be Drawn From Our Study

(1) The planning process can never identify all the future problems management will encounter, or specify all future management decision points. It does not, and cannot, provide all the answers to the multitude of imponderables facing management.

(2) The establishment of formal processes for planning does not necessarily guarantee successful planning. In large companies, however, such formal processes seem to be a prerequisite for planning success because they provide management with a rational frame of reference in the rapidly changing business environment.

(3) The whole company must be encompassed in the planning process. By whole company is meant all the firm's activities and functions.

(4) Long-Range planning must be carried out by 'doers', and must provide a climate that encourages

enthusiastic innovation. Operational management must be made responsible for planning in their areas of operation no matter to what extent the staff specialists are used in their planning of detailed work.

(5) Participation from top to bottom is necessary to translate plans into action.

(6) Organisation planning, often the most difficult process, must be included too.

(7) Without specifically and explicitly stated strategic objectives within an explicit, overall statement of company philosophy and general aims, no planning will ever succeed.

(8) Long-term plans outlining the intended actions, and short-term plans of action must be fully integrated. It is useful to break them into three categories : long-range, medium-range and short-range plans. Management must establish for itself a calendar of anticipated actions and decisions.

(9) Long-range planning must emphasise the constant improvement of the company's technical competence.

(10) Figures are not plans. Successful planning must consider not only 'what is to be achieved' but also 'how it will be done'. Figures are only end-products of positive planning.

The improvement of South African planning practices must take place along these broadly outlined categories.

Obviously, this will take time as no miracles can happen overnight. Yet, if South African firms wish to survive in the not too distant future, this process must begin now, not tomorrow.

This urgency is reflected, in the following statement made during a conference as far back as 1967, by the president of the Lockheed Missiles and Space Company, Mr Eugene Root : "I am firmly convinced that no manager in this era of rapid environmental change and galloping technological innovation, can long survive the competition without some form of long-range planning."(24)

28.9 Recommendations for Future Research

"Since research is the efficient method for developing a science or solving practical problems, it must go beyond the trial-and-error method of fact gathering alone."(25)

And similarly, if progress is to be made by South African firms in their practice of formal, long-range planning the gaps and inadequacies uncovered during our study must be filled and corrected. This requires that progress be made in the methods and techniques at present used in planning by South African firms. However, it is essential that the planning technology remains simple and pragmatic, since, when the planning job cannot be done in easy and simple ways, managers will be frustrated, and planning will suffer, or even be abandoned.

Our judgements formulated in the preceeding chapters on the manner in which South African planners should

address each planning step were based on practical requirements, special relevance to planning and on the urgency of the need for improvements. To realise these improvements, further research is necessary, which would contribute further to our knowledge of South African business and theory of planning. It would also provide answers to some operational problems and so offer a gain of greater familiarity with the formal, long-range planning practiced by South African firms.

We shall now attempt to outline the needs for further research :

(1) The need to examine the relevance of present business education to the necessary improvements outlined above. Can a closer cooperation between universities and industry help this process? And, if yes, what kind of programme would be beneficial to develop the kind of professional planners with knowledge and attributes described in section 11?

(2) The need to examine the influence of management styles on the planning process with regard to our special ethnic situation.

(3) The need to investigate the factors affecting diffusion of formal, long-range planning among South African firms.

(4) The need to investigate the contributions South African planners could make to developing tests of relevance for determining the suitablity of theoretical planning models to practical

application. This would include testing of available data, variability of data and sensitivity of model results to them.

(5) The need to investigate the possibility of finding practical application of existing decision analysis models.

(6) The need to investigate the applicability of computer simulation by South African planners.

(7) The need to examine the question of the role of the South African firm in its society and of its objectives.

(8) The need to investigate the objectives structure of South African firms.

(9) The need to examine applicable models for setting objectives.

(10) The need to examine South African firms' adaptability to rapid environmental changes.

(11) The need to examine the South African planners' understanding of the structure and dynamics of finance, production, marketing, research and development, as well as of the information networks of the firm.

(12) The need to investigate the difference between South African firms, both in their objectives and in the ways they pursue them.

(13) The need to investigate how the different external conditions and different product technologies affect the behaviour of South African firms.

(14) The need to investigate the differences in the internal functions of South African firms.

(15) The need to examine the implementation and integration of individual plans in South African firms.

(16) The need to investigate how planning systems could be tailored to the needs of South African firms.

(17) The need to investigate the design and planning of information systems.

(18) The need to examine the means for increasing the acceptance of and compliance with formal, long-range planning.

These are not small tasks but they are essential because our present state of knowledge requires the formulation of meaningful hypotheses before any development and improvement can take place. The suggested research must place priority on realism rather than formalism, and will definitely extend our existing knowledge and so provide opportunities for development of better methodologies and thus contribute to our understanding and solving of problems of formal, long-range planning in South Africa.

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PART V : PROPOSED MODEL OF LONG-RANGE PLANNING

29. CONCEPTUAL MODEL

29.1 Outline of Possible Approach

In our preceding chapters we have taken the context of current scientific thought and looked on planning within the framework which is applied at present. However, if we view planning as a complete discipline, then, as our analysis shows so clearly, it suffers from many kinds and degrees of shortcomings.

Planning must be viewed as an essentially normative pursuit, because it deals with 'futures' rather than with facts, and these 'futures' can be extrapolated and subordinated to some 'oughts'. These 'oughts' mean that a policy must dictate analysis, that alternative courses of action must be evaluated, selected and ordered in terms of some values, and that judgements must be made, so that we can choose the norms that warrant our decisions.

In planning we must, however, speculate and imagine. We must think about things which are non-existent and may never become reality. Planning, thus, is divorced from reality and a problem arises when we try to reconcile the attributes above with the requirements of the scientific method.

There is one way to do it: we can separate the normative, future-creative and dynamic properties from planning which means a separation of planning from policy. Planning then becomes only a tool for the ordering, scheduling and control of day-to-day operations, but as such can be called only 'short-term

operations planning'.

By doing so - and the bulk of planning is carried out in exactly this way - we have created a very strange situation. By foresaking the choice of direction and of ends, by separating policy from planning, in spite of the truly fundamental importance of policies, we have given up the rationality of our pursuit. The day-to-day operations with their determination and allocation of means and working out of optimal schedules now became the primary focus of our attention.

Exposed to terrifying forces and amidst revolutions can we afford the luxury of persevering in such a ludicrous situation? There is an urgent and inescapable need for us to realise that concepts such as ends, means, values, valuations, value judgements and norms cannot be eliminated from planning because, without the choice of direction and ends based on values, there is simply no future and, furthermore, without these elements no theory of planning can be elaborated.

Unfortunately, our minds are being trained to view the future only in terms of present certainties, and this has made us to neglect grossly the normative approach. These certainties are imposed upon us by our technological world, and anything that goes beyond them is ignored or interpreted as irrelevant. Thus, we have narrowed our vision, and can conceive of the future only by what we believe is feasible in terms of our current technological capabilities.

Within these limits is placed what is called prediction and its model of the future suggests that there is

some preordained reality. But such a 'predicted future' can only be an extension of the present, and by accepting this kind of prediction we abdicate our role as creators of new and different events and act in such a way as to make this prediction come true. Thus, we are perpetuating the present and we eliminate whatever is not technologically feasible. This 'feasibility' is used as a criterion for direction and action, and hence, most of our problems can be viewed as having only technical solutions. Because the range of feasibilities is vast, so is the range of solutions, and we can make it grow further if we wish.

The future at which we should aim should transcend mere feasibility. It should be created by judgement and choices based on the idea of desirability and betterment; desirability which goes beyond individual preferences and which leads to social betterment. Such a future must differ radically from present reality; it involves valuations, judgements and decisions pertaining to the attainment of man-determined ends and to the selection of appropriate means that will lead to this achievement. The emphasis is thus placed on the identification of ends rather than on the techniques to be used to reach them. Such ends are different from our present technological world-view and transcend its boundaries.

Seen against this background, planning as a model of human action contains within itself the goals towards which it is directed. It selects values, it invents objectives and defines goals. It seeks norms and defines purposes which determine the higher-order organisations and is self-regulating and self-adaptive.

The above discussion, based on the views of Ozbekhan[1] now offers a firmer basis for a better definition of planning. Planning can be visualised as a three-level structure of a future directed decision-continuum. This structure is made up of different kinds of decisions which are tied into a complex network of action flows and control mechanisms by the process of various functional relations. Three classes of functions can be considered :

(1) Administrative functions which ensure the organisation's internal coherence and governing. These functions also ensure the implementation of the decisions taken at the higher two levels described as

(2) Goal-setting functions which can be equated to executive decision-making at the strategic level, and

(3) Norm-seeking functions which are the core of 'normative' planning and correspond to what is usually called policy-making.

Within this framework adopted from Ozbekhan[2] we consider goal-setting as the heart of strategic planning while orthodox planning sees goal-setting as a part of policy-making. This approach has a policy-making phase consisting of norm-seeking rather than of goal-setting, and is thus fundamentally different from the present approach to planning.

We can now organise the above suggestions around the concepts of 'planning', 'environment', 'purpose' and 'plan'.

the focus of action is to bring changes in the environment leaving the value system untouched; but if planning is conceived of as a continuous organisation of progress then changes in the value systems must be effected as well to achieve consonance between the value system and the environment. Changing value systems means establishing new norms which give values new meanings. Thus planning must redefine or invent new norms.

(D) A plan is a construct of an integrative, hierarchically organised action in which decisions of various kinds are ordered functionally. Three levels of functional relations between a plan and the environment can be considered :

(1) The policy-making function which is directed towards the search and establishment of new norms and results in what Ozbekhan calls 'normative planning'. These norms help in defining values which will be more in agreement with the environment. Normative planning, therefore, means changing the value system in order to achieve consonance with the environment.

(2) The goal-establishing function, which results in strategic plans. A strategic plan reduces various alternative ways of attaining the objective(s) of the 'normative plan' to goals which can be achieved, given the optimum allocation of resources and the range of feasibilities involved.

(3) The administrative function leading to operational planning. In this kind of planning strategies that will be implemented are ordered in terms of priorities, schedules, etc., dictated by the situation. Changes brought about in the

environment by the operational planning are purely of a problem-solving nature. (In other words, operational planning does not involve a consideration of value premises.)

29.2 New Dimension of Corporate Planning

In our preceding discussion we have used the term 'futures creation' and have defined it as meaning the creation of our future, involving actions of such kind as to make this future conform to some present views or vision of it. Such actions must be conscious, purposive and have the highest values set upon them, whatever these values are taken to be.

In 1964 a book by Denis Gabor appeared entitled "Inventing the Future"[3]. In this book the author offers an inspired, optimistic vision of man's future, shaped both through science and through his free will; a future dictated not by science and machines, not even by psychologists, but by norms suggested by inspired humanity - poets and writers. The author's credo is that man has the ability to invent his future.

Our analysis and survey seems to indicate that, in spite of the negative influence of 'management science' on the present practice of corporate planning, some efforts do contain seeds of the concept of a 'willed' future.

Some large organisations are establishing corporate planning departments or units and one activity carried out in these units or departments, often called 'exploratory planning', during which social, economic, political and technical forces are examined against the background of a set of norms. The aim of this

activity is to find out how this set of norms affects the continuous existence of the firm, and what kind of future is guided or inspired by this set of norms. This process leads thus to formulating values to be aimed at by the firm.

There is an increasing number of organisations in the world engaged in future's research and planning. Probably the best known is the Hudson Institute at Croton-at-Hudson, directed by Herman Kahn and famous for his book "The Year 2000". There are in existence even institutes called 'Institutes for the Future', where people with a generally optimistic outlook have dedicated their efforts to a study of the future in order to make it a better happier and more successful future for all of us.

Three modes of operation used by these organisations can be distinguished :

(1) Scenario techniques which might be defined as 'manufactured stories' which attempt to describe a probable, possible, interesting and illustrative sequence of events. The purpose of this technique is to explore the decision loci in a series of events or policies. Standard learning curves and trend techniques are usually used, and consensus is sought for concerning the most likely trend to affect us in the period ahead. This is an interdisciplinary approach. However, the forecasts and predictions are not as important as the thought process motivated by them. The other major technique of these researchers (appropriately called 'futurists') is called the 'Delphi technique').

(2) The Delphi technique was initially used extensively on U.S.A. government defence projects. It is, strictly speaking, not a technique for forecasting, but more a way of organising and tabulating forecasts. A group of experts in a specific field are asked anonymously in a succession of opinion-gathering sessions for their opinions in this field. Their views and opinions are summarised, and the experts are then presented with the resulting set of opinions. Extreme opinions are reconciled, and after the process has been repeated several times, the operation is ended. A resulting report usually indicates the mean position and the limits above and below the mean. The area thus delineated is the most likely area or period of occurrence, and if narrow, one can be reasonably sure of the likelihood of occurrence in the period under examination.

A Cross Matrix Impact is a follow-up of the Delphi technique, displaying systematically and calculating the influence of one event upon another by a set of parameters on another set of parameters. These events or parameters are averaged in a two-dimensional array with the factors, events, issues, developments, goals or other families of variables displayed along columns or rows. Probabilities, obtained from a Delphi exercise, usually assess the impact of each event against the other.

The Delphi technique is a matter of a great controversy. Technical people are very slow to accept it because, to them, this technique represents averaging of quality and genius. Actually this technique is only a search for

consolidating opinions, an additional source of useful data, on which to base judgements on the future.

(3) The Forces for Change Method - the third mode used has to do with the consideration by management of forces for change affecting society.

Various surveys have identified the views of various experts on such forces which are and will be affecting our future.

(i) A changing system of values - through increased social security, high wages and salaries young people no longer worry about the necessities of life, but more its quality and the meaning of life itself. Expressed differently, young people work to live, rather than live to work.

(ii) An increasing use of computers which are becoming more and more important in the world in which we live.

(iii) Increasing leisure which expresses itself in a shortening working week. Already there are firms working a four-day week.

(iv) Education - an explosion of knowledge forms a new dimension in a society dominated, up to now, by business and government.

(v) An increasing awareness of social responsibility by business enterprises is a new dimension in planning. More and more firms are becoming concerned about the role they should play in the society which requires some good from them.

(vi) Gigantic and multinational companies are definitely a new force in our society and in planning. It may well be that multi-national companies are the best way to create world understanding because they bring different people together, and a greater progress can thus be achieved.

(vii) Changes in bio-medical fields may also represent a very significant force which may bring about far reaching and important changes through genetics, behaviour control and so forth.

(viii) Increasing use of long-range planning is only a logical outcome of the forces described above. More and more companies are realising its importance as a new technique to cope with the factors mentioned and are now making a more detailed examination of what lies ahead to be able to recognise problems as early as possible, and to understand better the environment in which they operate. They recognise that a changing world requires changes, and they work out warning systems that help them to programme their movements in the future.

29.3 Planning Redefined - Creation of the Future

How can all these techniques be amalgamated into formalised company planning? Or posed differently, how can we invent our future by using such techniques? We shall now attempt to put forward a concept that offers us that possibility and hope that in spite of its being incomplete, it may be of some help to those who contemplate either the introduction of long-range

planning activities, or the improvement of the present planning system, which is dictated by technology only.

At present, as Toffler[4] illustrates so brilliantly, our perception is still largely governed by the world view of 19th century industrialism. We have only begun to sense that our present belongs to some other, newer order, and that our task is to define its rationalising principles.

From our survey and observations we have tentatively derived descriptive ideas and have suggested the main salient elements making up the context of planning activities.

Planning, being a new and raw discipline (art or science, as you wish), is an activity which operates on some object or activity and is applied to some object or activity for some specific purpose, generally to effect change(s) in this object or activity. Using this rudimentary statement, we may now offer the following, more elaborate definition : Planning means defining the purpose of any change we wish to bring about in this object or activity and designing the actions which will achieve this change.

Substituting in this definition for the object or activity, 'a combination of physical objects, the environment, thinking, volition, attitudes, behaviour, movement, human activity, institutions, traditions, procedures, and so forth', the above definition becomes not only more complex but also more complete. We can simplify it by using one single term which encompasses an even greater number of combinations into which the above elements can be introduced in the form of

changing relationships. The term suggested is 'a system'.

During our previous discussions, we have identified 'a system' as meaning 'a set of objects together with the relationships between the objects and between their attributes'.

So much for the object of planning and its purpose.

One question still remains to be answered. Why should we plan for change? The answer is surprisingly simple: because we conceive of this change as more desirable than the present state and this corresponds to an improvement and betterment of the present state resulting in a change in values. Through improvement or betterment we realise progress.

29.4 Conceptual Model - Key Issues

Most of our present decisions engage a distant future without ourselves being aware of it and any conceptual model must consider this aspect. But using the few simple constructs set above to suggest a practical, universally applicable, conceptual model is, however, not a simple matter.

A key issue is the need and the achievement of a compromise between precise, manipulable models, and accurate but prescriptively ambiguous ones. The model must be a realistic one, but realistic models cannot be evolved without formal abstract models. A normative, precise and highly abstract model may generate hypotheses which can be compared and evaluated more easily than a highly detailed description, and so provide opportunities to develop and test improved

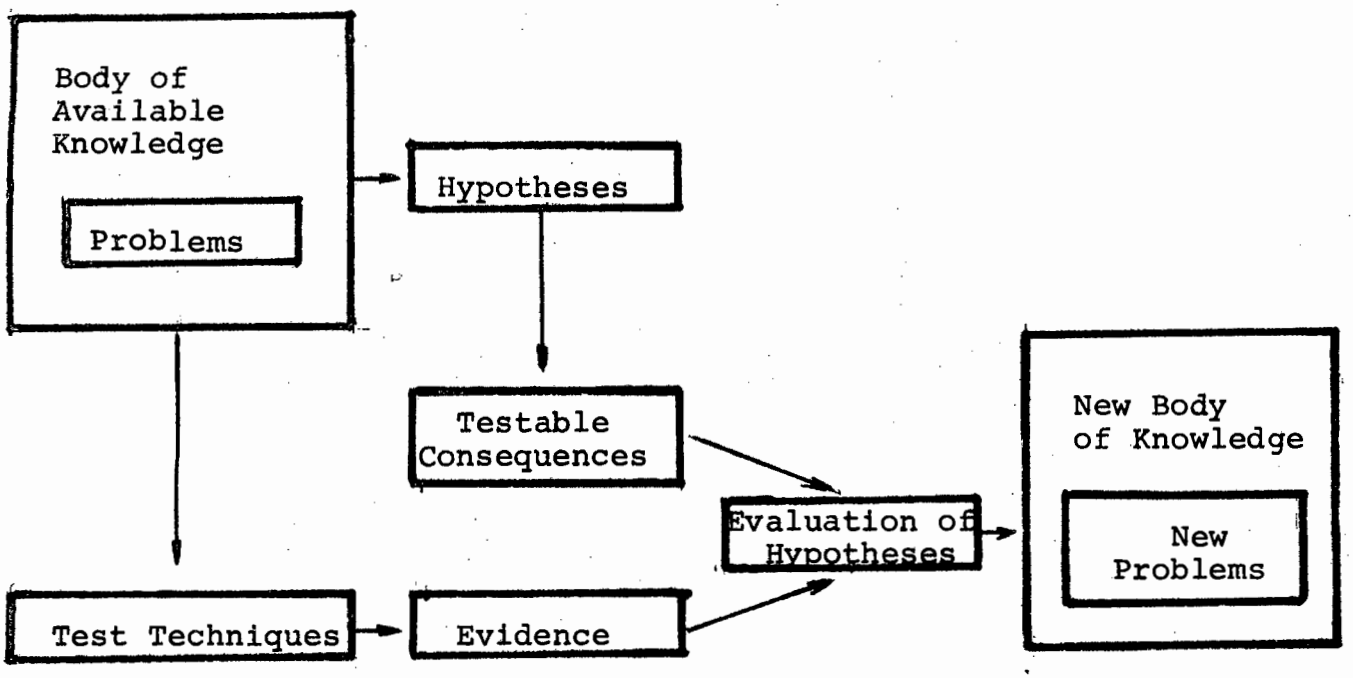
methodologies that will solve important problems in corporate planning.

Although the basic orientation of modern management remains unchanged (planning, organising, staffing, directing and controlling or a similar division), it uses the knowledge and methods of certain scientific disciplines such as mathematics and other categories of science to a far greater extent than before. This is a second important issue which must be considered in elaborating a conceptual, planning model.

In our introductory chapters we explained that such an orientation has its origin in operational research (management science). This influence has allowed the introduction of greater vigour and has encouraged attempts to apply scientific methods to business activities. At present, management science attempts to integrate and converge these methods and techniques with the needs of management. This evolution should permit the liberation of a greater part of the executive's energies so that they should be able to concentrate on the strategies of progress, motivation and creativity.

And so, the above concept being kept in mind, modern management could become more scientific by applying the cycle of scientific method as illustrated below, even though it has not yet evolved a basic, general theory of planning, and in spite of the fact that all proclaimed laws remain only quasi-laws.

Application of the Scientific Method



Source : Mario Bunge, Scientific Research 1-4, Springer Verlag, N.Y., 1967, pp.8-9.

In the above example we illustrate the chief stages to be used in approaching the problem of managing[5].

We discern, in fact, the following sequence of operations :

(1) Ask well-formulated questions.

(2) Devise hypotheses, both tested and testable, to answer the questions.

(3) Derive logical consequences of the assumptions.

(4) Design techniques to test the assumptions.

(5) Test the techniques for relevance and reliability.

(6) Execute the tests and interpret their results.

(7) Evaluate the truth of the validity of the assumptions and the fidelity of the techniques used.

(8) Determine the domains in which the assumptions and the techniques hold, and state the new problems raised by this activity.

Expressed in broader terms, this approach may also be outlined as follows :

(1) Observe the broad patterns.

(2) Break out separate aspects.

(3) Lookfor regularities.

(4) Try to set up a model, if necessary a mathematical one.

(5) Note the implications of the model.

(6) Search for needed revisions and limitations of the model.

The importance of such an approach is gauged by the changes it induces in our body of knowledge and/or by the new problems it poses. Used by the management of business enterprises, it will result in a set of balanced tools and techniques which will help management acquire the following three fundamental characteristics :

(a) The formation of a unified whole, a system, the elements of which are interconnected, and where a change in one results in an adjustment of another;

(b) The anticipation of actions by preparing the future in a systematic way; and

(c) The control of the actions in a sufficiently rapid manner permitting management to take the necessary timely corrective actions.

Such a management could be called an 'anticipatory management' and may be defined as a system of thoughtful studies, more or less long-term in character, covering the total sum of the firm's activities, and resulting in a programme of coordinated and controlled actions, and achieving a greater effectiveness in its economic environment.

29.5 Proposed Planning Steps

Within such a framework, the starting activity could be called 'systems analysis' which would permit the building of a model within which the process of direction will take place and the following steps are suggested :

(1) Selecting values.

(2) Inventing objectives.

(3) Defining goals.

(4) Devising actions necessary for the attainment of objectives.

(5) Implementation of these actions (operational plans).

(6) Control of performance and feedback leading to eventual recycling.

These planning steps, expressed in more operational terms and slightly expanded would read :

(1) The determination of needs, based on a system of values.

(2) The definition of objectives, based on a system of values.

(3) The determination of solutions permitting the attainment of these objectives, and the establishment of their interrelationships.

(4) The evaluation of the system as to its costs and utility, using, if and when necessary, operational research and its mathematical techniques and economic analyses. This evaluation, however, goes beyond them. It encompasses operational research, but differentiates itself from it by questioning the initial concepts. It uses economic analysis but appeals to supplementary criteria representing the personal values embedded into the decision-maker's considerations, biases and prejudices, whether they be ethical or political.

(5) The utilisation of abstract models, such as mathematical models, if they can help the understanding of complex relationships and thus permit a better description of them. Simulation of behaviour, operational exercises, opinions polls and consultation with interested groups or sectors should be similarly used.

(6) The implementation of the proposed solutions (operational plans), control of performance, feedback and recycling.

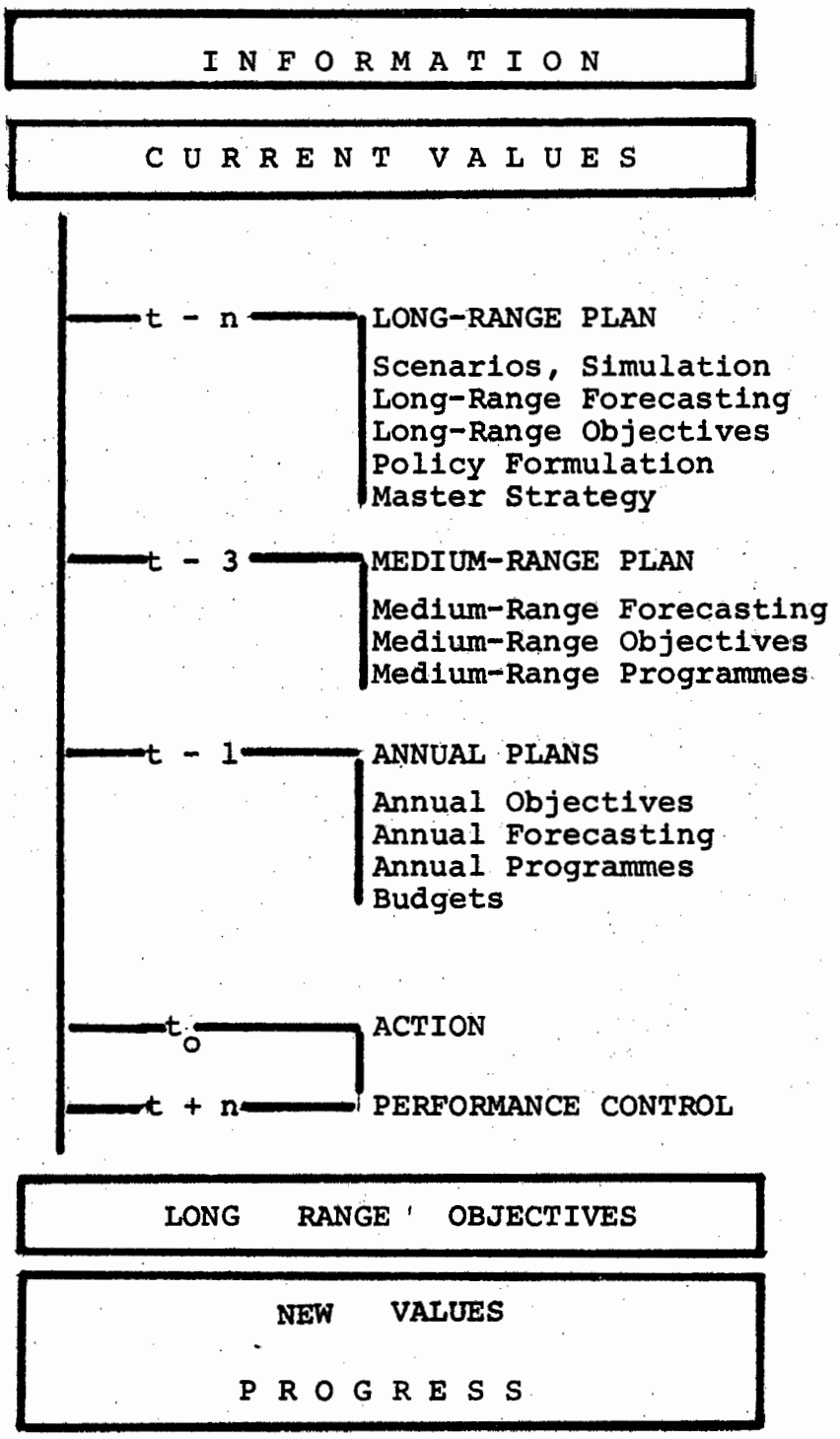
Such an analysis is, obviously, interdisciplinary, and has to be carried out through the cooperation and

participation of experts belonging to different disciplines such as economics, mathematics, sociology, political sciences, medicine, agronomy, and so forth. However, the planner has to complete this analysis, the techniques being placed at his disposal even though they are in themselves insufficient. He has to formulate the problem as shown in the diagram illustrating the application of the scientific method (page 397) by searching for adequate and appropriate objectives, by defining correctly the environment which will affect the solutions considered for their attainment, by judging the costs and other information in order to be able to invent alternative solutions that also permit the attainment of objectives. One aspect must be especially emphasised, namely that the interpretation of the experts' analyses requires the imagination and judgement of the planner.

The tasks described do not, however, suggest that the planner plays a directive role and so becomes the decision-maker. Nothing of the sort. His mission is more limited, and consists solely of directing the attention of top management to the major elements of its task. He is only a catalyst of information and offers the top management a structure. The real agent of the analysis of the system is the top management, and the planner's function is only to direct the top management in the application of methods to its problems.

29.6 The Model

This systems analysis leads to a concept of integrated management which is shown on page 382, and which can also be presented in the following manner :


INFORMATION
CURRENT VALUES
t - n
LONG-RANGE PLAN
Scenarios, Simulation
Long-Range Forecasting
Long-Range Objectives
Policy Formulation
Master Strategy
t - 3
MEDIUM-RANGE PLAN
Medium-Range Forecasting
Medium-Range Objectives
Medium-Range Programmes
t - 1
ANNUAL PLANS
Annual Objectives
Annual Forecasting
Annual Programmes
Budgets
t o
ACTION
t + n
PERFORMANCE CONTROL
LONG RANGE OBJECTIVES
NEW VALUES
PROGRESS

Corporate planning has to be visualised as one of the most developed products of this concept, and it must start with :

(1) Long-Range Plans

Firms should aim not so much at predicting what will happen but they should rather develop the most favourable conditions for their progress. They should develop all elements which will enable them to exploit occasions and opportunities for growth, and to give direction to their future, rather than simply accepting and enduring it.

This kind of activity requires the development of a fast and precise system of information which would enable the management to perceive better the evolution of the environment and would allow the firm to carry out better analyses.

Furthermore, to achieve the creation of its future the company must acquire the mastery of the phenomena of creativity. To merely increase the research and development expenses is definitely not a creative act.

An organisational pattern has to be developed capable of carrying out tasks which will be more and more global in character. The central mission of the enterprise is to foresee and create or recreate systems and to adjust them continuously to changing needs. Such efforts should encompass complementary activities such as (a) the study of managerial tools and techniques, and (b) the training of executives.

The organisational structures must be sufficiently flexible to exploit all opportunities for progress, and because their functioning is inseparable from managerial techniques, these problems must be studied and treated as a whole. Seen in this light, the training of executives assumes very great importance, and is undoubtedly one of the surest investments any enterprise can make in the long run, and one of the most potent means of creating its own future.

Such management, a true scientific management, born from requirements of a dynamic strategy, engages the whole enterprise in a cumulative process of growth and progress. It is only natural that it can adopt more aggressive strategies, and also assume more fully the role of an entrepreneur as has been so emphasised by Peter F. Drucker in all his works. It will also be able to fulfil its function of economic creativity, and when it develops, from within the ferments of motivation and progress based on a system of values as vigorous as the present pressure of technological research, then the outcome cannot but be a permanent movement forwards resulting in new values.

The method of attacking the task of long-range planning cannot be prescribed dogmatically. However, the subject can be divided into two parts :

The first phase is the broad determination of general objectives and primary purposes. A broad outline of the purpose and objectives must be prepared at the top of an enterprise and the final document would treat the primary purposes and general objectives (for a period of more than five years ahead) as follows :

(i) A general statement defining the operations of the company to include the quality of products, dependability, and other similar aspects.

(ii) The minimum acceptable level of profits expected.

(iii) The markets to be covered.

(iv) The determination of product lines and of standards for manufacturing.

(v) A general statement regarding the sources of supply.

(vi) A general statement dealing with the firm's organisation, principles, distribution, practice and related considerations.

(vii) A general statement covering all financial aspects - working capital, utilisation of funds in excess of operating needs, the firm's debt conditions and dividends.

(viii) A general statement concerning the personnel, to include levels of employment, morale, enthusiasm, wages and salaries, career, succession plans, safety, working conditions and welfare.

(ix) A general statement dealing with the research and development programme.

(x) A general statement on public relations, covering such aspects as the company's image, its standing in the community and sale of its products.

The number of suggested general statements will vary from company to company depending on factors such as the kind of activity, size, organisational complexity and so on.

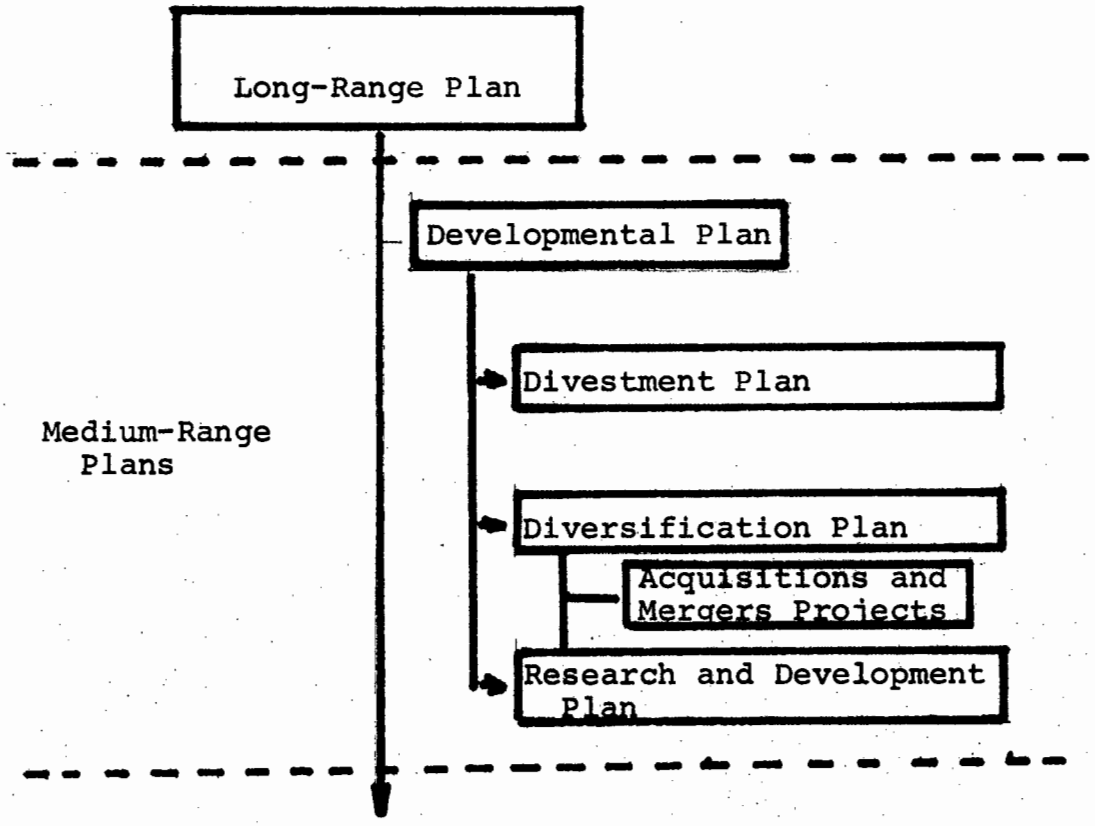
(2) Medium-Range Plans

The second phase encompasses the follow-on and the ever-changing rationalisation and detailed planning necessary to successfully realise the stated objectives within the specific period of time.

This planning system is more detailed and exact for a period of from three to five years. The medium-range plans also permit framing the future in a more or less empirical manner. Such plans can also be called developmental plans, growth plans, opportunity plans, etc. The planning horizon of from three to five years will obviously depend on the type of company, its size and the nature of its product line (or service) and the markets served.

They are, in reality, plans of growth or revitalisation of product lines for a company. Hierarchical executives and not staff, as explained in our notes on organisational aspects of planning, must be responsible for their elaboration. The responsibility for growth and development should not be solely that of top management, but should encompass a growing number of levels. Each successive level should prepare plans for the future in more precise terms.

The following simple diagram shows one possible hierarchy of these plans :



The above scheme, in which we closely follow the steps of the conceptual planning model suggested by the Stanford Research Institute and outlined in section 7.10 indicates that the starting point is the long-range plan, which gives the enterprise a set of norms and a set of general objectives.

The development plan may, in certain cases, aim at divesting from specific activities; in other cases it will search for possibilities for diversitication. Its function is to organise the growth and/or revitalisation of the firm's present products. It allows the firm to engage immediately in activities required to attain this aim, even if the results are to be achieved several years later. It can consist of the following elements :

(a) Internal development - search for and development

of new products, marketing actions, new structures;

(b) External development - acquisitions, mergers, agreements;

(c) Divestment from products or markets which do not offer sufficient profitability.

This kind of plan reinforces the preparation of the future of the company and allows the firm to master its destiny. It permits the consideration of changes which the firm considers as a desired and normal state, and treats them accordingly.

A medium-range plan must specify :

(i) Objectives for each year of the three to five year period.

(ii) Operating policies by which these objectives could best be attained.

(iii) Resources required to carry out the policies.

(iv) Organisation structure.

(v) Orqanisation operations. and

(vi) The design of data collection and analysis.

Objectives must be formulated separately for each year of the three to five year period, so as to indicate a desired rate of improvement during the period. They must be set for each functional area of the enterprise : marketing, manufacturing, finance, research and development, personnel and so forth.

Products must be classified and categorised into the

smallest number of basic classes. Objectives must then be set for each product class in terms of values based on forecasts of the number of customers.

Profit objectives must be broken down into their components of income and cost. (Income here means sales volume and costs reflect the productivity of each operating, service and administrative function.) Objectives involving productivity must also be formulated.

Policies for sales and distribution must be elaborated, dealing with (a) changes in prices, (b) additions to and deletions from the product lines, (c) changes in consumer behaviour, (d) expenditure in advertising, sales promotion, research and development and packaging of products, (e) changes in channels of distribution, and (f) changes in arrangements with wholesalers and retailers, (minimum order quantities, discounts, credit terms, promotion).

In addition the requirements of people, space and equipment for each operational and administrative unit must be determined.

In the area of organisational structure the following aspects must be covered : (a) the optimum size of operating units (for each function), (b) the optimum number of similar units to be coordinated by one manager, and (c) the optimum basis for coordinating units (e.g. geography, function or product).

As far as the control of performance is concerned the following questions must be considered : responsibility and authority for (a) initiating recommendations for change, (b) accepting and rejecting the recommendations

for change, and (c) evaluating the policies or courses of action.

In order to evaluate any proposed plan for change it is necessary to have all the information covering : (a) forecasting, (b) resources required at various levels of operations, and (c) data on the effectiveness of operating policies, organisational structure, etc.

(3) Annual or Operational Plans

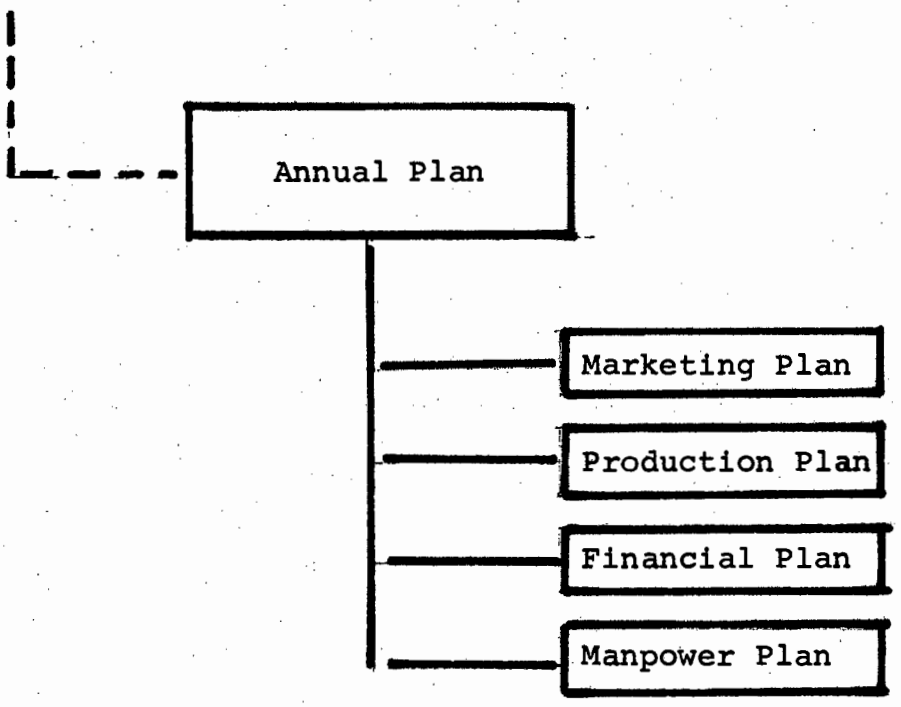
Once all these elements have been made interdependent through programmes and plans based on objectives expressed in figures, the management of 'existing' products to be made by 'existing' processes and using 'existing' procedures and methods, can be organised within a logical, measurable framework. Management in this category of planning becomes more 'automated'.

The achievement of the annual plan has to be controlled by a coordinator using an information system which must be precisely defined and diffused to all levels of the enterprise. The plans of action of each division or department, (depending obviously on the size and complexity of the firm), must be transmitted to the coordinator, together with all monthly performance data. Monthly results attained are then compared with the plan's objectives and the reports showing all variances must be sent promptly to responsible or interested executives. These should comment upon these variances and if they do not exceed a certain limit, the superior level of management does not intervene.

Such a system will permit the top management to

concentrate more fully on long-term problems and the enterprise's growth and progress becomes the firm's principal activity and criteria of its effectiveness. Any kind of progress is a function of creativity which in turn demands, and will continue to demand, flexibility and initiative. Yet only a balance between flexibility, initiative and imagination can constitute the criterion of the development of a truly scientific management.

A simple diagram below illustrates the main aspects of an annual plan. Its details will, obviously, vary again from firm to firm, depending on factors such as kind of activity, size, complexity and so on.



29.7 Organisational Structure of Planning

Some aspects of the required organisational structure have already been described in the preceding section. Other suggestions are briefly presented below.

The first step in planning - setting company's objectives - is logically the responsibility of the chief executive. The planner or a planning committee may well help him in this task. The use of a planning committee has a supplementary advantage of getting the major departments involved and interested in planning at an early stage.

The group charged with strictly long-range planning would consist of a few top executives selected by the chief executive from the planning committee on the basis of their imagination, intellectual curiosity and keen interest in the broad spectrum of business environment. They would, obviously, continue in their functional jobs, but would be assisted by one or more full-time assistants, either from within the company or hired as consultants. These specialists might be chemists, biologists, mathematicians, sociologists and so forth, depending on the type of business the firm is in.

The medium-range and short-range planning and current sizing-up should be the responsibility of the operating personnel representing the major functional departments who may also be grouped in a committee. Their specific planning tasks would be concurrent with, and designed to tie into, their daily operating responsibilities. This planning group would also be given specific projects.

It should be stressed that there is no one best way to organise the planning activity within a given enterprise. There are many conflicting views on this problem, and what is right and adequate for one company may not be right or suitable for another firm. One might even say that one form of organisation may be

right for the same company during one period and completely unsuitable during another. One has to consider all factors, internal and external which are more and more dynamic in character.

However, whatever form this pattern may take, the following conditions must be realised if planning is to be successful :

(a) to create a favourable atmosphere for planning;

(b) to relate planning to doing; and

(c) to instill the importance of planning into every member of the enterprise.

30. FORMAL MODEL

30.1 The Role of the Computer in Planning

The planning process discussed up to this point represents a conceptual viewpoint, the primary emphasis of which is simplicity, logic and consistency. Only by moving from the easier, everyday specific things to the more abstract can we succeed in finding the correct basis for building a comprehensive, general planning theory. For the time being, simple frameworks to guide the planning activity are all that are needed. The emphasis must be placed on a combination of imagination and creativity with an analytical method and a sense of realism. The final topic to be considered in this context is the role that the computer may play in this process, particularly at the higher levels within the organisation.

Our survey and observations indicate that there is a firm belief that computers will contribute increasingly to planning at all levels. There seems to be a general consensus especially among management scientists and some planning enthusiasts (mainly theoreticians), that models tailored to company needs will be constructed and fed into computers and actual events or alternative courses of action would be passed through the model to give instant new plans. We have already touched upon some of these aspects in our introductory section.

There are already some corporate computer planning models in use, but like so many of the latest management techniques they are still in the development stage and by no means ready for everyday use. This failure is

explained by experts who argue that average company management must undergo some education before they are ready to make full use of computerised planning. They also stress the fact that this apparent failure has been caused by the fear of managements that they would have to abdicate their responsibilities to the machine. Experts have, obviously, hastened to assure management that nothing of this sort would ever happen.

The experts list the 'relative' advantages of the computer but emphasise the superiority of man's ability over machines to process information. Such a comparison, obviously, depends greatly upon the current state of technological advances. At the same time these experts affirm that the computer will not remain for ever limited to routine tasks, and that man's mental endowments may well be duplicated on the computer!

We shall take up this argument later, but we will focus our immediate attention on their suggestion that an especially powerful and fruitful symbiosis between man and the computer is encountered in long-range planning in coping with the enormously complex problems found in this activity. In this cooperation man would propose alternative plans, placing a utility value on the predicted alternatives, and the machine would then determine by means of a formal model, the consequences of each alternative. In addition to this task, the computer could also provide a general capability for retrieving specified information.

The decision and utility functions, well understood at present and capable of being described formally, would be, therefore, incorporated with the computer models. Functions that cannot be formalised would

simply be reserved for the human decision-maker.

Any man-machine model would have a hierarchical structure that would allow the planner to examine details selectively. This man-machine system would speed up all phases of the planning process, though it would not change its iterative nature, which has the advantage of allowing modifications to plans before they are executed. In conventional systems such modification may not be made until long afterwards, when feedback identifies deviations in an unrealistic plan.

Such a system would also offer the advantage of speeding up all phases of the planning process, so that plans could be formulated on the basis of more recent information. Quicker response to changes in existing plans - should this be necessary - would also be permitted.

Because of the 'relatively low' cost of processing information in the man-machine system, this would result in the use of greater details in planning, more alternative might be considered, a greater realism in models could be so introduced, and the high-level planner would be in closer contact with detailed planning than under the conventional system.

We have serious reasons for not having integrated this 'man-machine' system into our conceptual model, and the following section will examine in detail this 'man-machine dream' to make these reasons clear.

30.2 Objectives for a Corporate Planning Department

Our conceptual model of planning postulates, among

others, the following objectives for the company's planning department :

(1) To provide management with the most modern tools and techniques available to permit them to manage better the resources available so as to attain the firm's objectives and goals efficiently and effectively.

(2) To possess a working knowledge of the computer, so that the right tool is used in the right place.

(3) To implement the use of new management science techniques in areas there they are not being used, if such use is justified and appropriate.

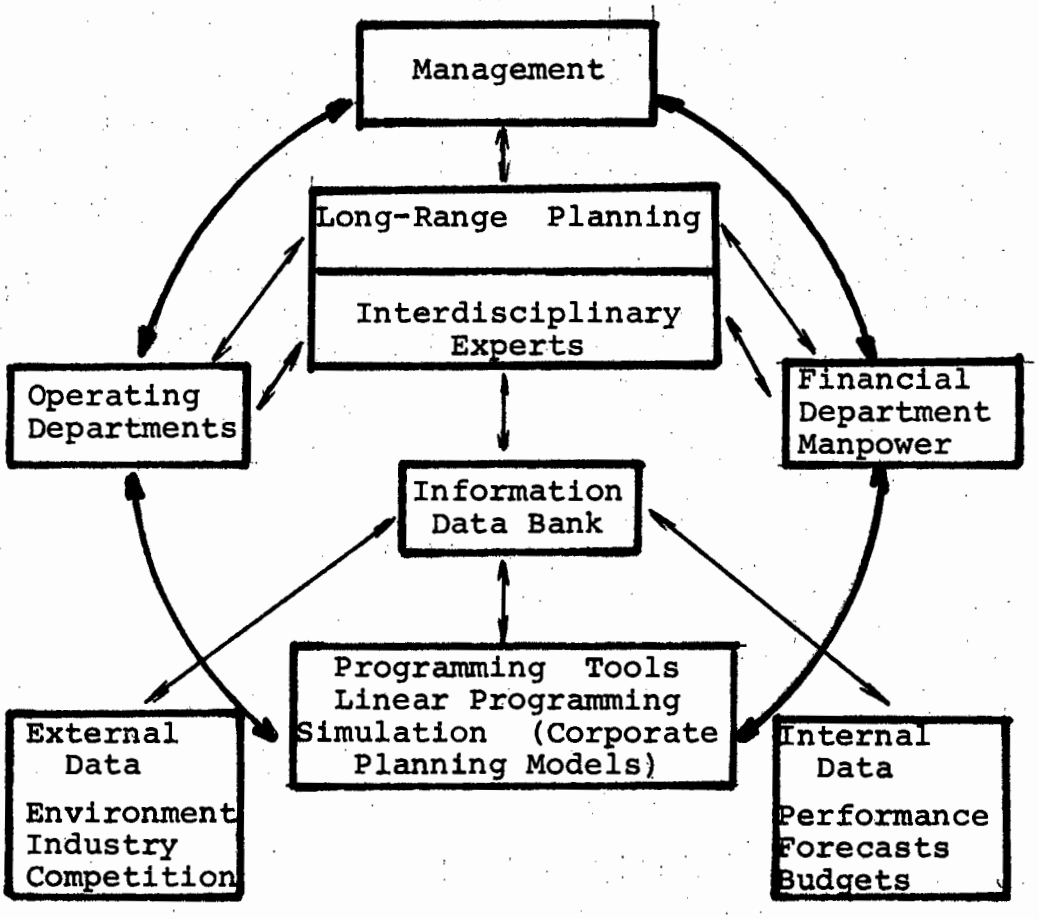
The planner's role is to provide executive departments with a quantitative basis for decisions regarding the operations under their control.

However, long-range planning, in spite of its inter-disciplinary character, is primarily a social science, and as such, it must communicate effectively if changes are to be brought about. The communication problem has long been recognised, and to illustrate this critical problem more forcefully, we could go as far as to say that executives have to take decisions based on data they do not fully understand, collected and presented by people they do not fully understand, and submitted in terms they do not fully understand.

The full impact of this statement has been demonstrated in our discussion on management science. These scientists have never really established communication with the management practitioners. As long as the unity of science and management is not realised, there

is no real hope that computer-aided planning will become a real help to management, in spite of the fact that such planning has seemingly gained acceptance. This modern tool, the computer, has already been misused in the past in other areas of managerial activities, even though seemingly simple tasks have been handled, such as inventory controls, production scheduling, credit control and similar activities. Several instances of such misuses from the local scene could be cited.

The relationship between the company's management, its operating departments and its planning department or unit is very complex, as shown in the diagram below :



Compiled by the Writer

It is only natural that in the face of such complexity, the communication problem, as illustrated, is stupendously magnified.

30.3 The Purpose of a Corporate Planning Model

Using the experts' definition[6] "the purpose of a corporate model is to permit a consistent and comprehensive projection of corporate future activities, given a set of planning assumptions". One may say naively that the end-product of a corporate planning model would be simply the production of anticipated annual reports (such as balance sheets, profit and loss statements, information on capital structure, source and application of funds), for a firm for a series of years in the future.

But these documents are not produced by a routine, mechanistic process; they result from a careful definition of the firm's role and its objectives- they include figures resulting from an analysis of the past, and figures representing specific targets, including the environment, competition, the company's functions and capital structure.

These interacting, interdependent and interrelated variables must be coordinated into a system of interdependent activities.

Leaving aside the various aspects of organisation and administration, it is no wonder that scientists of mathematical orientation have been tempted to express this complex relationship by mathematical formulae in the hope that simple symbols would facilitate the understanding of this complexity and bring some order into the seeming chaos. In their language the

operational levels of the various activities represent variables in their equations. These variables either physical or financial in character, once tied into seemingly consistent sets of equations, could be used for predicting the future complexes of relationships.

This is a simple and potent argument and one should not be surprised that the use of mathematical models has recently had a phenomenal growth in business as a means of expressing relationships between variables, testing the validity of hypotheses, and developing rules for decisions.

To clarify our thinking let us remember that models can be classified either as descriptive, normative or both. A descriptive model is useful in portraying the behaviour of a system, while a normative model is intended to guide its operations for which rules are based upon the evaluation of relevant variables, and the system's objectives.

The purpose, then, for which models are built is to help study, formulate and recommend the system's (company's) objectives. The concept of objectives is a broad, as well as an important, one. It may be an economic objective, affecting all parts of the company such as maximising profits, or it may be a physical one, such as to increase the company's market share by x percent. The model can test the compatibility of these two kinds of objectives, and if they are compatible, it may, for example, develop a set of sales volumes of various products and a choice of equipment which would enable the firm to make these volumes, and so meet the specified objectives.

30.4 Types of Planning Models and Their Construction

Three approaches to planning models could be traced in the literature available on corporate planning models and their construction :

(1) Corporate Simulation

(2) Programming Models.

(3) Econometric Models.

These three possible approaches cannot be considered to be completely separable, and the above categories are offered for the sake of clarity and convenience only. All three approaches primarily offer tools for measurement, and, with the exception of programming models, they do not offer prescriptive solutions.

(1) Corporate Simulation

Our survey of the literature on this topic has brought to light some statements concerning attributes of corporate simulation that appear to be common denominators :

(a) Most models are used primarily for financial planning at the corporate level.

(b) The majority of such models answer "What-If" questions about financial relationships.

(c) Most of these models consist of sets of equations comprising analytical structures that relate sets of inputs to performance-type outputs.

(d) Most models belong to the descriptive variety that does not attempt to prescribe optimal solutions.

(e) Most models are deterministic in character.

The adoption and continual development of corporate simulation projects by firms in America and in Great Britain as well as in South Africa seems to be spreading. According to a study undertaken by George Gershefski in 1970 in America[7] more than 100 models were in use or in development, and these models were used primarily as tools in the preparation of one-to-five-year financial plans, or as aids in long-range planning.

The structure of this type of model is in accordance with conventional income statements. The model estimates significance of the prediction of the income statement which is completed when the inputs for this planning structure are assembled. In addition to providing a computational framework to relate together the variables and ratios, the model enables a number of "what-if" types of questions to be answered, such as for example, "What if sales were R15 million rather than R12 million?"

(2) Programming Models

In this kind of model the superstructure consists basically of an economic objective function for the firm and a set of constraints on the unlimited achievement of that objective. The objective function quantifies the answer to the question, "What is the economic goal towards which the firm is directing its activities?" and the constraints quantify

the answer to the question, "Why cannot the firm achieve this objective?"

The specific structure of a programming model is shown below[8] :

$P_t = f(O_{1,t}, O_{2,t}, + \ldots + O_{n,t})$ where P_t = performance measure such as profits for time t, and $O_{1,t}, O_{2,t} \ldots O_{n,t}$ = alternate outputs in time t.

The outputs typically compete for the firm's resource inputs and the extent of such input trade-offs as well as overall company limits on available resources are defined by a series of constraints, such as for example :

$$O_{1,t} \leq g_1(M_{1,t}, O_{1,t-1})$$

$$\vdots \qquad\qquad \vdots$$

$$O_{n,t} \leq g_n(M_{n,t}, O_{n,t-1})$$

$$M_{1,t} + M_{2,t} + \ldots M_{n,t} \leq CF_t$$

$$CF_t = h\overline{\angle}(O_1 + O_2 + \ldots O_n)_t, LC_{t-}\overline{/}$$

$$c_1O_{1,t} + c_2O_{2,t} + \ldots + c_nO_{n,t} \leq LM_t$$

$$d_1O_{1,t} + d_2O_{2,t} + \ldots + d_nO_{n,t} \leq CE_t$$

$$\ldots \text{ etc., etc.}$$

where

$M_{i,t}$ = marketing expenditures on product i in time t

CF_t = total available cash flow

LC_t = unit labour costs in t

LM_t = maximum available labour hours in t

CE_t = maximum available machine time in t

h, g_i = some function

c_i = unit labour requirements

d_i = machine requirements

The above partial listing of typical constraints indicates the specific constraint structure of programming models.

(3) Econometric Models

More recently, econometrics has been employed for the construction of planning models. Such models measure and analyse the relationships among variables within and around the firm using the statistical and mathematical tools of econometrics. In econometric models surveyed, three general classes of endogenous and exogenous variables can be distinguished :

(i) Environmental variables influencing the firm's decisions from outside, generally exogenous in nature.

(ii) Control variables that are within the control of the firm's management, and may be either endogenous or exogenous.

(iii) Performance variables that measure the firm's economic and financial performance, usually endogenous.

The structure of such models can best be described by an example[8] shown below :

$$P_1 = f_1(P_2, P_3 \ldots P_y, C_1, C_2 \ldots C_m, E_1, E_2 \ldots E_n) + \mu_1$$

.

.

$$P_y = f_y(P_1, P_3 \ldots P_y, C_1, C_2 \ldots C_m, E_1, E_2 \ldots E_n) + \mu_2$$

$$C_1 = f_{y+1}(P_1, P_2 \ldots P_y, C_2, C_3 \ldots C_m, E_1, E_2 \ldots E_n) + \mu_{y+1}$$

.

.

$$C_{y+m} = f_{y+m}(P_1, P_2 \ldots P_{y-1}, C_1 C_2 \ldots C_{m-1}, E_1, E_2 \ldots E_n) + \mu_{y+m}$$

where

$E_1, E_2, \ldots E_n$ = environmental variables such as total volume of demand, product prices, labour costs, money rates, GNP, total industry output, purchasing power of the industry's customer group and average industry prices

$C_1, C_2, \ldots C_n$ = control variables such as the firm's price structure and production level, the size and character of its sales and advertising programmes, the rate and direction of its capital investment programmes, the size and direction of its research and development programmes, the size and direction of its management and organisational structure, the extent of its equity and external debt, financing

and the financial leverage, the size of its cash balances and liquid asset position, the size of its management and employee development programmes, and the overall market and product areas in which the firm competes, including its new product and acquisition policies

$P_1, P_2, \ldots P_y$ = performance variables such as the firm's level of earnings, growth in earnings, projected earnings, growth in sales, overall market outlook and management reputation, long- and short-term debt, cash flow, debt-to-equity ratio, current ratios, quick ratios, times interest earned

f_i = general functional notation

μ_i = error term

In the above structure the performance variables are interrelated in such a way that P_1 is, in effect, a product of the value $P_2, P_3 \ldots P_y$, which means that the P variables are jointly determined as a part of a simultaneous system. The C variables may also be jointly determined and significantly interrelated with the P variables. The general structure enables to measure these effects when some of the C_i are designated as endogenous. These models presume that the entire set of endogenous variables may be uniquely evaluated by reference to the previously determined set of exogenous variables. Estimating the coefficients in a simultaneous system can be done by appropriate techniques which will yield rational estimates of the existing relationships among variables.

Econometric models do not tell us the optimal values for our control variables, although data may be provided by their application which may bear upon that question. The choice between the many different kinds of econometric models possible at the level of a firm largely depends upon the objectives of the model builder. It is difficult to explain the specifics of the models illustrated above without some examples of specific model structures applied in surveyed corporate planning models but the length of such illustrations place them beyond this work's scope.

To complete our overview of corporate planning models we shall briefly comment upon the kind of equations used and on the steps involved in the building of these models. The equations used in the discussed models may be classified according to the nature of the relationship they describe. The following categorisation is generally accepted :

(a) Definitional equations

(b) Technological equations

(c) Behavioural equations

(d) Institutional equations.

(a) Definitional equations describe an exact definitional interrelationship between two or more variables. (For example, profits (P) equal sales (S) minus total costs (C), that is P = S -C.)

(b) Technological equations describe the results or interactions of an essentially technological (or physical) process. The production function (from

economic theory), relating a company's output (O) to its labour (L) and capital (K) input is a typical technological equation. The equation O = f(L,K) reads as output equals a function of labour and capital and describes the company's output as a function of labour and capital productivity.

(c) Behavioural equations describe operating constraints imposed by internal or external institutional (or policy) factors. Institutional equations can be further subdivided into three sub-categories according to the institutional factors they describe (external factors, internal factors, or both). Figure 27 below shows the uses and limitations of the four categories of equations described above.

In building and working out a model five steps are involved :

(1) Definition of the problem, selection of criteria and identification of alternatives.

(2) Formulation of the structure of the model. At this stage techniques must be determined which will be used, and the form of relationships between the factors puts the alternatives into perspective helping to identify others. Data requirements are also determined. All factors influencing the outcomes are listed, a flow-chart of the qualitative model of the situation is developed, and this model is then converted into a general mathematical model.

(3) Data collection involves gathering data required to derive empirical estimates of the parameters indicated in the generalised model.

FIGURE 27 : THE USES AND LIMITATIONS OF THE FOUR BASIC EQUATIONS

Equations	Phenomena Analysed	Inputs Required to Derive Equation	Accuracy or Stability of the Equation as as Estimator	Major Use of Equation
Definitional	Exact Stipulated Inter-relations (i.e. exact by definition)	None, represent exact definitions Knowledge of inter-relation between the variables	Accurate by definition - exact by definition	To develop precise inter-relations between variables
Technological	The results or interactions of an essentially techno-logical or physical process	Historical data describing the inputs and outputs of the technological process Knowledge of the dynamics of the process	Normally accurate and highly stable as long as the process has been accurately described and is not subject to sharp change	To forecast or project the results of a technological process in terms of the inputs required to yield a desired output or, conversely, the output that can be expected from a given combination of inputs
Behavioural	Human behaviour patterns; the response of the company's company's customers, workers and competitors, etc. to a given stimulus	Historical data describing the behaviour of a given sector of the population to a given measurable stimulus Knowledge of the behaviour pattern	Depends on the persistance and stability of the behaviour pattern Subject to 'random shocks' since human behaviour patterns cannot be perfectly reduced to mathematical equations	To forecast or project the results of a change in some given independent variable (or set of independent variables) on the behaviour (i.e. purchasing, expenditure or investment, etc.) pattern of a given human population

Figure 27 (cont.)

Equations	Phenomena Analysed	Inputs Required to Derive Equation	Accuracy or Stability of the Equation as an Estimator	Major Use of Equation
Institutional	Operating or marketing constraints introduced by either the company's own policies or the policies of government, the banking system, or the industry, etc.	Historical or projected values of the institutional constraint parameters Knowledge of the institutional structure	Accurate by definition as long as policy or institutional factors do not change. Subject to error if the projected policies change	To develop an objective explicit estimate of the impact of a given company or external policy on the company's operations and to render explicit all of the purely institutional constraints which limit the courses of action open to the company

Source : Robert Weinberg : "The Uses and Limitations of Mathematical Models"; An Analytical Approach to Advertising Expenditure Strategy; New York; Association of National Advertisers, Inc.; 1960; pp.89-116.

(4) The computation step involves computing the parameters required to convert the generalised model developed in step (2) into a specific planning and control model.

(5) The last step - verification and adjustment involves comparing the estimates generated from the model with their actual counterparts and verifying the model. If estimates deviate, determining the adjustments and/or changes to be made in the model takes place in order to eliminate these deviations.

From the above overview one can conclude that the process by which an experienced management scientist arrives at a model he is studying is probably best described as intuitive. If one grants this then the interesting question becomes the pedagogical problem of how to develop this quality.

In our survey of literature dealing with this aspect we have not discovered one single proposal of how this pedagogical problem should be incorporated in the management science. Naturally, another question arises immediately in our minds : What if the management scientists elaborating and building corporate planning models do not possess the above rare quality?

30.5 Use of Planning Models

The purpose of planning models is, therefore, essentially to study the future development of a firm from the present to some future state. As described above, two basic approaches are possible. The first is based on optimisation and the second on simulation.

The first type of model would be useful for setting

guidelines for the choice of investments in the medium- and long-term.

The second type of model, simulation models, lack optimisation and in this model the essential size and shape of the company over time is defined as input and the model can be used to examine the effects of various predetermined assumptions about growth and the resulting financial picture of the company through the examined years.

Which of these two approaches is used largely depends upon the type of questions which the model will be assumed to answer. The survey of literature available at present in this field of endeavour indicates quite clearly that corporate planning models now exist in all types of industries in the U.S.A., as well as in South Africa. Some South African companies have started to build planning models during the last ten years, and because of the 'believed' potential benefits of corporate modelling, an increasing amount of corporate model building activity in the next few years can be anticipated.

30.6 'Believed' or Assumed Advantages of a Model

The advantages of models cited in many articles and works surveyed by us would be as follows :

(a) Models are comprehensive and consider the effect of interrelated accounts.

(b) Models provide rapid and relatively cheap answers. Once they have been developed, management can experiment with them, using a wide variety of forecasts.

(c) Models follow a precisely documented procedure, which is defined unambiguously.

(d) Models help define the needs of management for information.

(e) Models provide a communication link throughout the company.

(f) Models enable management to assess the long-term impact of short-term decisions.

What is strange, however, is the fact that the computer manufacturers are more cautious in their respective offers of hard- and software for planning models. Their offers are more general and philosophical in character and emphasise the ultimate responsibility of the user. Even more strange is the fact that one of the largest computer firms participating in our survey does not use any formal planning model for its own planning process. Not even one of the advanced planning techniques such as linear, dynamic, integer programming, simulation, PERT, etc., is used by this company as an aid in its decision-making process.

30.7 The State of the Art

With the above information firmly established in our minds, let us now examine the present state of the art as reflected by the literature available on corporate planning models. A rather well defined evolution has been identified. The early optimising models developed in operations research groups have been largely discarded (with some isolated exceptions such as oil companies and plywood and similar industries). There are several reasons for this fact. Firstly, policy decisions have proved too complex to define in

optimising terms; secondly, the organisations do continuously change; and lastly, operating managers could not understand these models. It would appear, however, that modelling is still controlled by operations research groups in European countries, and so their efforts in corporate models building are still largely oriented towards optimisation. It should be mentioned, however, that computer simulation techniques were developed in 1965 in Great Britain[9], but only a few companies have attempted to make use of them. British managers do not seem to like interactive corporate models in their planning.

After this vogue came the development of simple report generators by finance and corporate planning groups. At the same time, the operations research groups were developing partial, fragmented models intended for use for special problems such as pricing, plant location, etc. Both groups have attempted to build 'conversational' (interactive) capability into their models.

The most recent efforts have been directed towards developing integrated, modular corporate simulation models or systems. Such systems are composed of simple elements representing various parts of the organisation. These modules can be considered in isolation or in total. The simulation models not only describe and analyse systems, but, once constructed and tested, they may also be applied to predict the effects of alternative policies, strategies and decisions.

However, even these models are becoming so complex that they will suffer the same fate as the earlier

optimising systems. The current literature on corporate modelling, leads one to surmise that their builders feel somehow compelled to increase the complexity of all models, probably on the assumption that intricacy means a greater usefulness.

The computers, perhaps unfortunately, have made it easy for individuals to use analytic methods they do not understand, or to use models that do not fit the problems. Without a good definition of the problem a good model cannot be constructed.

There is the final question which should be raised. Is computerised corporate planning suitable for all firms? A number of firms, after having investigated the concept of computerised planning, have rejected it primarily because of the costs involved. Planning models are expensive, and firms such as retail organisations that have relatively simple planning requirements can handle them more economically by traditional methods. Only firms with a well defined flow of work and progressive management would be successful in installing and using corporate modelling profitably. Otherwise it may generate more problems than it solves. The major obstacles for successful application of planning, assuming that other problems that will be discussed later are solved, are human resistance to change, conflicts and ignorance.

Very often management information systems and computerised corporate planning are confused, the former being thought to be a prerequisite for the latter.

The management information system handles data on a detailed unit basis, for example, items in inventory,

and requires several years to be installed. Defined simply, it is a system for gathering and accumulating operating data on a real time basis and making the data available on request.

The planning system precedes the management information system and stems from decision requirements of management. This system provides the basis and specification for the management information system and to link these two systems represents a formidable problem to overcome. Only very few management information systems are operating at present and fortunately the planning system does not depend upon absolute accuracy and immediate updating of data.

30.8 Formal Model - A Dilemma

From the preceding analysis the following aspects emerge quite clearly :

(1) The mathematical and operational research techniques can play an important role in the solution of managerial problems which continue to increase in scope and complexity.

(2) Various mathematical approaches have been developed and are or have been used for solving managerial problems in areas such as production scheduling, physical distribution, operational planning and inventory control.

(3) During the last decade there has been a growing interest in the application of mathematical techniques in areas such as financial planning, capital budgeting and strategic planning.

Our survey of the local scene has shown that some of the larger South African companies follow these trends very closely. They also use mathematical techniques in operational areas, and some of them have attempted to apply them to corporate planning as well.

The techniques used by these firms are identical to those used by companies in the U.S.A. or in Europe. They are, therefore, universally transferable and do not require a special local adaptation. Only the kind and number of variables may change. These techniques can provide top management with means for a better understanding of how their decisions interact. They can clarify the factors that managers deal with and can point to those of utmost interest to them. However, the majority of South African companies are not yet ready to use such techniques, and in many instances they may not even need them yet. One of the largest industrial groups in South Africa has commented upon this aspect as follows : ". . . To a lesser or greater degree these techniques (advanced planning techniques) have and are being used in developing, evaluating and controlling a specific project, but our experience has shown that by and large, they are unnecessary".

It is an undeniable fact that models <u>can</u> play an invaluable role in managerial decision-making, and no effort should be spared to accelerate the education of South African managers in order that they may profit by using them. However, as far as corporate planning models are concerned, the attention of South African managers should be directed to some rather disturbing facts about these models.

After having followed their development and analysed

reports dealing with their use and application we must ask a simple question : Are the corporate planning models really useful to managers? Many of those firms that have adopted the use of planning models have, at present, either severely reduced or stopped the efforts to develop planning models altogether.

In many instances the developed models have not been implemented or they have only been used sporadically. But for us the most significant finding is the fact that formal planning models, when used, do not influence significantly the actual process of the company's formulation of strategy. The outputs of these models are not used, and most do not know what to do with all the information the models provide.

Naturally, those involved in the development of formal planning models attempt to explain these failures and offer excuses which can be summarised as follows :

(a) Managers are irrational and for this reason they dislike using planning models based on rational and logical principles.

(b) The models used are oversimplified (see our contrary finding above) or need information which is currently not available within the firm, (as if more sophisticated techniques or better information systems were just around the corner, and as if these improvements could solve the problems of implementation).

(c) Managers lack education in sophisticated techniques which can facilitate their processes of formulating strategies.

(d) Managers' attention is, at present, directed to more pressing problems forced upon them by increasingly difficult social and economic conditions.

The last excuse is probably the most ironical one because management scientists emphasise that the most important purpose of formal planning models is precisely to help and assist top managers in making decisions which would avoid these short range problems.

These findings [10] compel us to reexamine seriously the question of whether the current orientation towards formal planning models will ever lead to successful implementations of their outputs. What are our reasons?

The explanations offered by scientist-modellers are, obviously, only feeble excuses, and the scientists themselves may not be aware of their failure. To understand the situation, one has to examine the very basis upon which the development of formal corporate planning models rests.

We have described the decision analysis cycle leading to generation and formulation of plans as follows :

(1) Determine the data to be used for solving the planning problem.

(2) Propose alternative solutions for this problem and determine the consequences of alternative plans (the planner's responsibility).

(3) Select the best alternative. (Normally planners face multiple objectives and uncertain consequences

of their actions. The decision process thus becomes much more complex than simply choosing the highest utility in terms of a single objective.)

(4) Translate the selected plan into detailed lower level plan.

(5) Control the approved plan.

Current practice does not follow this normative framework of long-range planning. Furthermore, long-range planning is carried out by top managers in a dynamic unstable and highly political environment, and the implications of these facts are immense as recent surveys show[11]. These implications can be described in more detail as follows :

(a) Managers performing multiple tasks under continuous time pressures, are neither able nor motivated to examine the consequences of a range of alternative decisions; they avoid analyses requiring a large amount of inputs or more complex data inputs. (To offer one example of what is meant by complex analyses : the Sun Oil Company requires 1500 separate inputs[12] for their formal corporate model; the Edison Company[13] requires two months to prepare the input data for a single run of their financial model.)

(b) The actual role of top management is one of approval - it does not generate and evaluate alternative plans. Top managements are interested in models or other decision aids only if they can help in analysing the process at lower levels.

(c) Individuals or groups are committed to a single alternative which biases the planning process. Very often financial corporate models are so manipulated so as to 'look good', or are used as a weapon to reduce commitment to projects not deemed advisable. Biased forecasts are even prepared to gain commitment to a project fancied for some reason by analysts.

(d) The criteria for managers' evaluation are the results of their decisions and the quality of these decisions. In such instances the model is used, for example, to escape the responsibility of a wrong forecast.

(e) To develop planning models, extensive efforts are required, but the environment of continual management, company and social change precludes such efforts.

The above and similar factors have never been taken into consideration by model builders (can they ever be?) and so the theoretical views of a formal planning model as an unbiased evaluator of a range of alternatives in a range of environments are clearly not correct.

Furthermore, if one analyses the reasons indicated by various companies for adopting formal planning models, one wonders if the goals set out could ever be achieved. For example, in one case[12] the firm's reason was 'to improve and speed up the accuracy of planning'. In a second case[13] the motive was stated as 'giving top management more time to generate strategy'.

There are also secondary objectives commonly suggested

for planning models such as :

(a) To aid efficiency to the planning process because they permit the consideration of effects of more alternative environments;

(b) To increase the interaction because different groups in the firm are involved;

(c) To increase the learning process because planning models are ideal tools by which managers may gain insight into the complexity of the planning process.

Analysing these secondary objectives, one cannot but question their attainment through the implementation of a formal corporate model.

As far as the formal planning model itself is concerned, some say that it should be a 'robust' one, meaning that an interaction as complete as possible should be sought. However, there are planning situations when an improved interaction is definitely not a good thing. Russel L. Ackoff's findings in this respect are illustrated in his own words : "When organisational units have inappropriate measures of performance, which put them in conflict with each other, communication between them may hurt organisational performance, not help it. Organisational structure and performance measurement must be taken into account before permitting the free flow of information between parts of the organisation"[14].

Furthermore we have to admit that a modern, large company does not maximise profitability in any sense, and that many of its objectives are intangible and only poorly understood. It is, therefore, not difficult to understand that an environment of qualitative, poorly understood and conflicting objectives will hardly be

propitious to models which are oriented solely towards economics. Yet, up to now, only this kind of model has been produced.

Companies which have evolved formalised planning realise the increasing need to incorporate the cost/benefit analysis into the planning process. But how can this ratio be determined if the causal relationship between a plan and its multiple effects is naively and inadequately understood? How, in the absence of a comprehensive planning theory, could a methodology for predicting the causes behind future organisational performance changes evolve?

We have already mentioned elsewhere in this work the urgent need for developing ways how to understand and interpret the cause-effect relationships. In current models historical data are used to 'fit' various assumed relationships. There are fundamental reasons against the adequacy of 'fits', as pointed out in sections 10 and 11, and further reference in this regard can be made again to Toffler's book[4].

If Toffler and other futurists are right, then, in addition to all above reasons and to the evolutionary changes, the use of historical data - even when it seems to be relevant - is inadequate and inappropriate in constructing formal models for long-range planning because the direction and the magnitude of a causal relationship can never be assessed in a model based upon non-experimental data when multiple regression analysis is used because the 'goodness of fit' can never be utilised.

This has been pointed out by De Neufville[15] in the

following statement : "The statistical closeness of an equation to a set of observational data on a system is not a sufficient test of its validity. . . . Indeed, an example can be reputed to fit existing data quite closely even though it is actually quite opposite to the valid causal model".

This phenomenon, observed by statisticians since the mid 1930's, has been completely ignored by model builders. Several software manufacturers offer packages with statistical subroutines to allow the model builders to experiment with alternative relationships generated from historical data. These relationships can be highly misleading or outright wrong when used to project the effects of changes in the output variables of the firm's performance.

The last aspect meriting a few comments is the failure of current modelling efforts caused by the fact that these efforts are always the responsibility of staff. They are thus isolated from the actual formulation of strategy and so the strategy's qualitative, skill- and politically-oriented factors are not and cannot be reflected in the model. And so, more often than not, model builders interpret their task as one of 'making something which works', and this results in highly sophisticated, mathematical models which are useless.

Though isolated from the actual strategic process in terms of their background and experience, the model builders are nevertheless being made responsible for the success or failure of their formal models. Yet, long-range planning is the responsibility of the chief executive and this difference in viewpoint is significant and critical, and as Robert L. Katz has observed : "Management of the total enterprise demands

a different way of thinking, application of different criteria, and the exercise of different skills than are required for the management of any part. Many companies can and do survive without doing anything more than operating each part efficiently. However, such companies lose much of the opportunities to choose and change their own destinies . . . While there may not be an independent body of general management knowledge, per se, there are distinct skills and ways of thinking unique to the general management function".(16)

What is the answer to the problems discussed?

Management scientists must realise and recognise that the models' obsolescence is in direct relationship between their modelling efforts and the rate of change both in the company and the environment. Besides stating explicitly the objectives of the long-range planning modelling efforts, they must incorporate the actual organisational behaviour patterns in their models and this is definitely not a simple and easy task.

Further, it should be realised that the development of formal planning models must become the responsibility of top management. When this happens, their form will be quite different from those used at present. Such models will be :

(1) Simple, because the chief executive does not have time to develop and utilise sophisticated tools.

(2) Deterministic in character (dealing only with certainties);

(3) Information-processing rather than data-generating;

(4) Unique and individualistic, incorporating the chief executive's perception of compromises between commitment and personal reward.[10]

In these developments, the management scientists will not be the all-important contributors as they are today. Their contribution will come mainly from the insights and understanding generated by their research into (a) the causal relationships between a plan and its consequences, and (b) into the direction and extent (long-, medium- and short-term) of causal phenomena such as promotional effectiveness, research and developmental effectiveness, and the effectiveness of personnel developed.

Management scientists should also be used to study the process of strategy formulation as it exists at present - not as the various frameworks say it should. This orientation can and will result in the improvement of the quality of the decision theory so much publicised at present and this will, in turn, lead to the improvement of the decision-making process itself.

30.9 Conclusion

The above findings lead us to the inescapable conclusion that formal planning models, as they are formulated and built at present, can contribute very little to the improvement of the long-range planning process because their basic orientation is at fault.

As far as the other advanced techniques and tools of management science are concerned, their function is to help create informed judgement. As such, they are not only essential but vital to modern management, and should be used whenever this can be beneficial to the

decision-making of managers. Their application will, obviously, involve an extensive use of computers which must be efficient and effective.

We have to acknowledge the fact that explicit analyses carried out by such tools have many advantages, but that all criteria, assumptions, calculations, empirical data and judgements should be described in these analyses in such a way that they can be subjected to checking, testing, criticism, debate, discussion and possible refutation. Because such analyses are self-explanatory they help a person with a different point of view to understand how he might reasonably reach different conclusions if he believes that different assumptions may be more valid. Since such analyses have a self-correcting character, they can be the best protection against persistance in error, and finally, only this kind of analysis can build confidence in the results and in the decisions based on them.

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TABLE I : PROFILE OF SAMPLE OF 340 FIRMS

Group Characteristics		Number in Sample
Banks and Building Societies		14
Mining Companies		28
Coal	5	
Diamonds	3	
Gold	11	
Metals and Minerals	9	
Financial Houses		30
Mining	4	
Industrial	15	
Investment Trusts	2	
Insurance	5	
Property	4	
Industrial Organisations		266
Beverages and Hotels	10	
Building and Allied Industries	21	
Chemicals	9	
Clothing and Knitwear	26	
Fishing	5	
Food	13	
Footwear and Leather	7	
Furniture and Household Appliances	14	
Iron, Steel, Engineering and Electrical	58	
Motor and Transport	27	
Paper, Pulp, Packaging, Containers and Timber	13	
Pharmaceutical and Medical	6	
Printing and Publishing	8	
Stores	14	
Sugar	4	
Textiles, Carpets, Blankets and Yarns	9	
Tobacco and Match	4	
Retailers and Wholesalers	8	
General		12
Oil Companies	5	
Service (Travel, Dry Cleaning, etc.)	4	
Other	3	
Total	268	340

Note : The selected sample includes 8 conglomerates and is, therefore, in reality, much larger. These conglomerates represent alone 508 wholly-owned subsidiaries with 192 branches, 6 partly-owned subsidiaries and 55 associated companies.

TABLE 2 : ANNUAL TURNOVERS OF THE FIRMS SURVEYED *

Turnover	Number of Companies
200 000 – 1 million	1
1 million – 3 million	2
3 million – 5 million	3
5 million – 10 million	5
10 million – 15 million	4
15 million – 20 million	11
25 million – 30 million	4
30 million – 40 million	1
40 million – 50 million	2
50 million – 100 million	15
100 million – 200 million	5
200 million – 500 million	2
	55

NUMBER OF PEOPLE EMPLOYED

15 – 350	9
350 – 1 000	13
1 000 – 5 000	36
5 000 – 10 000	13
10 000 – 30 000	5
30 000 – 70 000	-
70 000 – 100 000	1
over 100 000	1
	78

* Not all respondents were willing to communicate their turnovers or the number of people employed. They consider this information as strategic.

TABLE 3 : PLANNING INTENSITY

Group	Questionnaire							
	Sent	Completed	Not Completed, Reason Given					No Reply
			In Process of Change	Other Business Pressure of	Other Specific Reason Given	No Reason Given		
Banks and Building Societies	14	4	1		3			6
Mining Companies								
Coal	5	2			2			1
Diamonds	3	2						1
Gold	11	1			2			8
Metals and Minerals	9	1			2			6
Financial Houses								
Mining	4				3			1
Industrial	15	3			6			6
Investment Trusts	2				1			1
Insurance	5		2	1	1			1
Property	4				2			2
Industrial Organisations								
Beverages and Hotels	10	2		1	6			1
Building and Allied Industries	21	5		1	1			14
Chemicals	9	4		1	2			2
Clothing and Knitwear	26	4	1	2	3			16
Fishing	5				1			4
Food	13				3			10
Footwear and Leather	7	1			2			4
Furniture and Household Appliances	14	3	1		3			7
Iron, Steel, Engineering and Electrical	58	19			13	1		25
Motor and Transport	27	9	1		4			13
Paper, Pulp, Packaging and Containers	13	5		1	1			6
Pharmaceutical and Medical	6				3			3
Printing and Publishing	8	2		1	1			3
Stores	14	6			2			6
Sugar	4	3			1			-
Textiles, Carpets, Blankets and Yarss	9				3			6
Tobacco and Match	4	1			1			2
Retailers and Wholesalers	8				2			6
General								
Oil Companies	5	3			1			1
Service (Travel, Dry Cleaning, etc.)	4	1			2			1
Other	3				2			1
Total	340	81*	6	8	79	2		164

* Including two firms that have answered our questionnaire only partly

GRAPH 3A : PLANNING SOUTH AFRICAN COMPANIES (Question A(1))

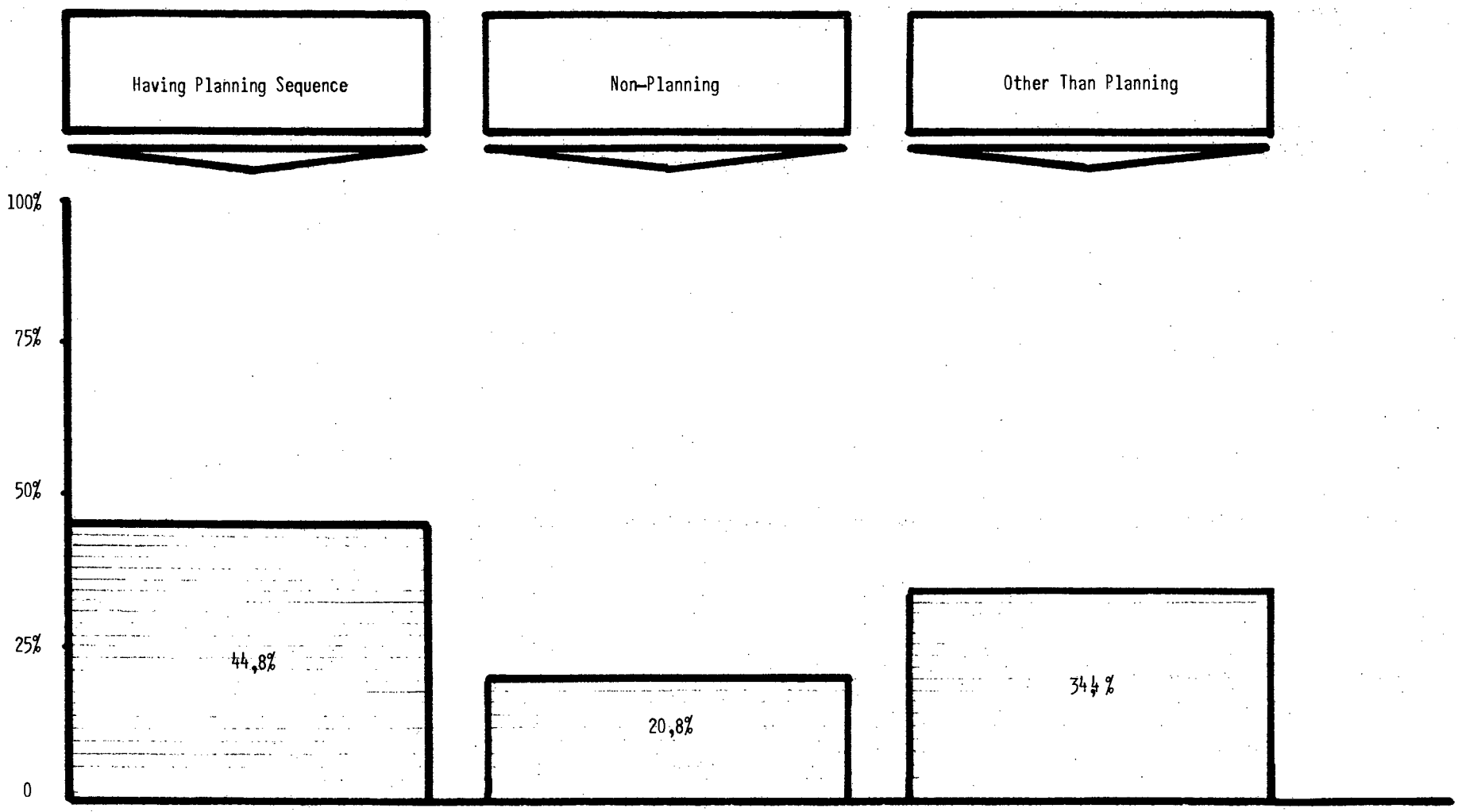


TABLE 3A : PLANNING SOUTH AFRICAN COMPANIES (Question A(1))

Group	Having Planning Sequence	Non-Planning	Other Than Planning	Total
Banks and Building Societies	5	1	2	8
Mining Companies				
Coal	2	1	1	4
Diamonds	2			2
Gold	1		2	3
Metals and Minersal	1		2	3
Financial Houses				
Mining		1	2	3
Industrial	4	2	2	8
Industrial Trusts		1		1
Insurance		3	1	4
Property		2		2
Industrial Organisations				
Beverages and Hotels	4		5	9
Building and Allied Industries	5		1	6
Chemicals	3		3	6
Clothing and Knitwear	3	3	4	10
Fishing		1		1
Food			3	3
Footwaar and Leather	1		2	3
Furniture and Household Appliances	3	2	3	8
Iron, Steel, Engineering and Electrical	16	5	12	33
Motor and Transport	7	4	3	14
Paper, Pulp, Packaging and Containers	4	2	1	7
Pharmaceutical and Medical			3	3
Printing and Publishing	2	1	2	5
Stores	6	1	1	8
Sugar	3	2		5
Textiles, Carpets, Blankets and Yarns			3	3
Tobacco and Match	2			2
Retailers and Wholesalers			2	2
General				
Oil Companies	4	1	1	6
Service (Dry Cleaning, Travel, etc.)	1	2		3
Other		1		1
TOTAL	79	36	61	176*

* Note : Including companies having declared 'yes' or 'no' without completing the questionnaire

TABLE 4 : DATE OF INTRODUCTION OF LONG-RANGE PLANNING AMONG SOUTH AFRICAN FIRMS (Question A(2))

Group	Prior 1960	1961	1962	1963	1964	1965	1966	1967	1968	1969	1970	1971	1972	1973	Intend to Introduce
Banks and Building Societies										x		x	x		x
Mining Companies															
Coal									x	x					
Diamonds	x									x					
Gold	x														
Metals and Minerals	x														
Financial Houses															
Mining															
Industrial											x	x			
Industrial Trusts															
Insurance															
Property															
Industrial Organisations															
Beverages and Hotels												x			
Building and Allied Industries									x	x	x	x			
Chemicals	x									x		x			
Clothing and Knitwear												x			
Fishing															
Food															
Footwear and Leather															
Furniture and Household Appliances	x								x						
Iron, Steel, Engineering and Electrical	x		x		x		x	x	x	x	x	x	x		x
Motor and Transport			x	x							x		x		x
Paper, Pulp, Packages, Containers and Timber									x		x		x	x	
Pharmaceutical and Medical															
Printing and Publishing										x					x
Stores	x								x	x					
Sugar															
Textiles, Carpets, Blankets and Yarns												x	x		
Tobacco and Match														x	
Retailers and Wholesalers															
General															
Oil Companies	x		x		x	x									
Service (Travel, Dry Cleaners, etc.)											x				
Other															

Note : In several cases the answer given was "many years ago"; in others no answer was given. The 'x' indicates that some companies have introduced formal planning in the year shown above.

How many?

GRAPH 5 : PLANNING HORIZON (Question A(3))

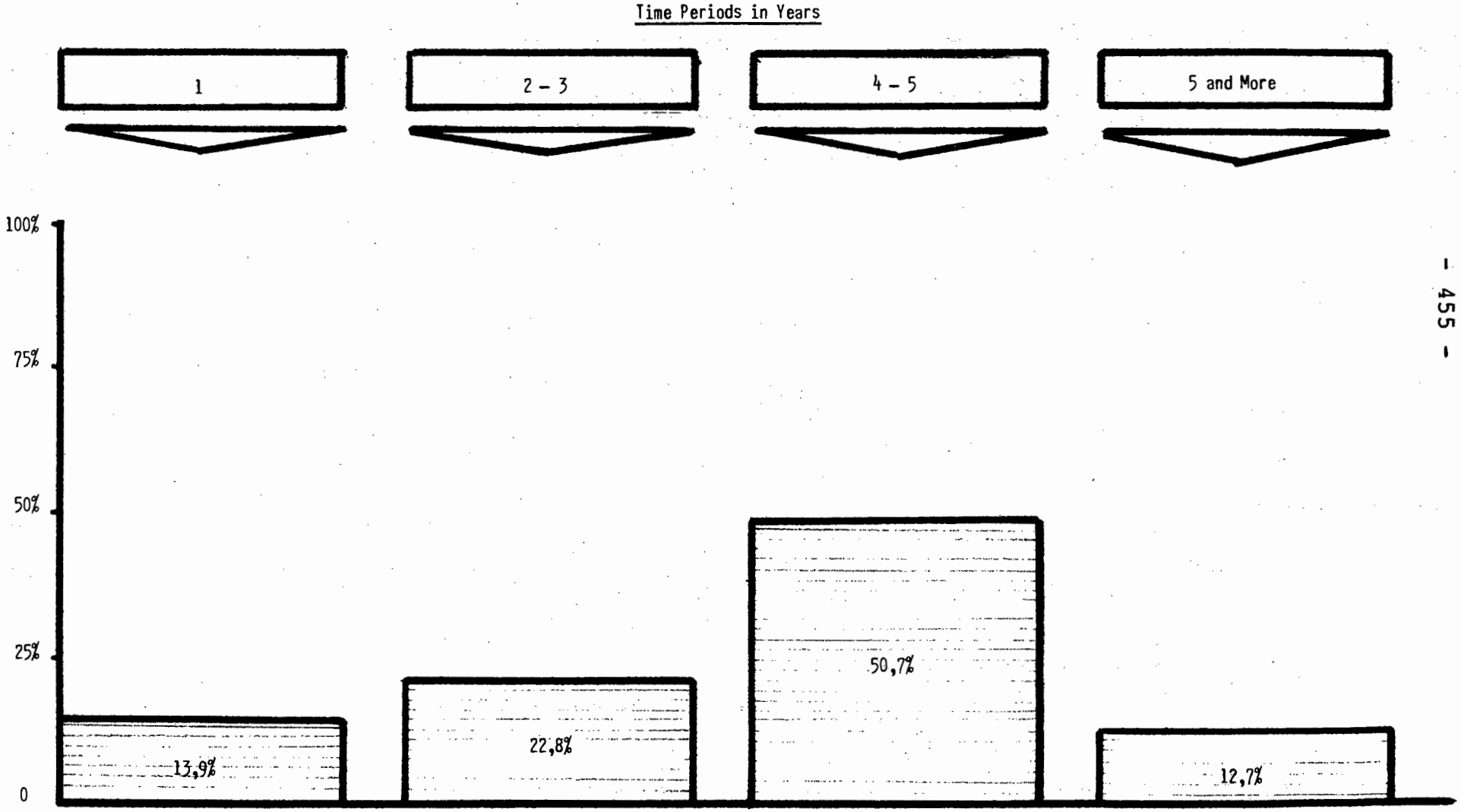


TABLE 5 : PLANNING HORIZON (Question A(3))

Group	Time Period in Years				Total Planning Companies
	1	2 – 3	4 – 5	5 and More	
Banks and Building Societies	1	4			5
Mining Companies					
Coal			2		2
Diamonds				2	2
Gold				1	1
Metals and Minerals	1				1
Financial Houses					
Mining					
Industrial			3	1	4
Industrial Trusts					
Insurance					
Property					
Industrial Organisations					
Beverages and Hotels		2	1	1	4
Building and Allied Industries			4	1	5
Chemicals		1		2	3
Clothing and Knitwear	2		1		3
Fishing					
Food					
Footwear and Leather	1				1
Furniture and Household Appliances	1		2		3
Iron, Steel, Engineering and Electrical		2	13	1	16
Motor and Transport	2	2	2	1	7
Paper, Pulp, Packages, Containers and Timber	1	1	2		4
Pharmaceutical and Medical					
Printing and Publishing		1	1		2
Stores	1	2	3		6
Sugar			3		3
Textiles, Carpets, Blankets and Yarns					
Tobacco and Match		1	1		2
Retailers and Wholesalers					
General					
Oil Companies		2	2		4
Service (Travel, Dry Cleaners, etc.)	1				1
Other					
Total	11	18	40	10	79

TABLE 5A : CAPITAL INTENSITY, ORGANISATIONAL COMPLEXITY, RATE OF TECHNOLOGICAL CHANGE

	Total Assets/ Net Assets	Number of People Employed	Capital Intensity	No. of Divisions	Subsidiaries (S) Branches (B)		Associated Companies	Rate of Technological Change (a)	Size (b)	Structure Complexity (c)	Type of Organisational Structure (d)
Banks and Building Societies											
UDC Holdings Ltd	21 915 000	320	-	3				-	S	M	H, MD
Nedbank Ltd	65 729 000	2 500	-	2				-	M	M	MN, MD
Standard Bank Investment Corporation	103 382 000	15 000	-	8				-	L	H	MN, MD
Natal Building Society	66 104 800	1 070	-		(B)	25		-	M	M	MN, MD
Mining Companies											
Clydesdale Collieries (Tvl.) Ltd	11 915 194	-	-	1				VL	S	L	SP
Coronation Collieries Ltd	8 802 000	715	-	1				VL	S	L	SP
De Beers Consolidated Mines Ltd	60 891 000	4 614	-	9				VL	M	M	MP, MD
Consolidated Diamond Mines Ltd	5 745 000	5 028	-	1				VL	L	M	SP
Buffelsfontein Gold Mining Co. Ltd	141 000 000	19 400	-	5				VL	L	M	SP, MD
S.A. Managanese Mines Ltd	19 577 000	3 500	-	4				VL	M	M	SP, MD
Financial Houses											
Federale Volksbeleggings Bpk	301 424 000	120	-					-	L	H	H
Barlow Rand Ltd	26 298 000	107 000	245,8	20	(S)	106	29	-	L	H	C, MN
Syfrets/UAL Holdings Ltd		1 227	-		(B)	159		-	M	M	H
Industrial Organisations								-			
Beverages and Hotels											
Rennies Consolidated Holdings Ltd	10 827 000	7 500	-	4	(S)	10		-	L	M	C, MN
Picardi Investments Ltd	2 037 000	15	-					-	S	H	H
Building and Allied Industries											
Buffalo Timber & Hardware Co. Ltd	112 000	336	333,3	4				VL	S	H	
Gypsum Industries Ltd	2 147 000	1 100	1 958,0					VL	M	H	
Plate Glass & Shatterproof Industries	10 474 000	14 000	748,1	41	(S)	270		L	L	H	
Bruynzeel Plywoods Ltd	7 500 000	5 500	1 363,6	6				L	M	M	
Everite Ltd	5 417 226	3 500	1 547,7	4				L	M	M	
Chemicals											
Federale Kunsmis Bpk	23 671 000	2 894	8 179,3	4				MH	M	M	MP, MD
ICI (SA) Ltd	43 000 000	900	-	8				MH	S	L	MN, MD
AE&CI Ltd	91 710 000	13 000	7 054,6					MH	L	H	MP, MD
Rand Carbide	4 912 000	975	5 037,9					MH	S	L	SP, MD
Clothing and Knitwear											
Ninian & Lester Holdings Ltd	4 856 000	900	5 395,5		(S)	4		VL	S	L	MP
Burlington Hosiery Mills (SA)	1 836 000	1 600	1 147,5	4				VL	M	M	MN, MP
Rex Trueform Clothing Co. Ltd	1 608 000	3 060	525,4	3				VL	M	M	MD
Delswa Ltd	97 000	1 600	60,6	5				VL	M	M	MD

Table 5A (cont.)

	Total Assets/ Net Assets	Number of People Employed	Capital Intensity	No. of Divisions	Subsidiaries (S) Branches (B)		Associated Companies	Rate of Technological Change (a)	Size (b)	Structure Complexity (c)	Type of Organisational Structure (d)
Footwear and Leather											
Silverton Tanneries Ltd	330 000	350	942,9					VL	S	L	SP
Furniture and Household Appliances											
Midland Aluminium SA Ltd	166 000	216	768,5	3				VL	S	L	MN, SP
Ellerine Holdings Ltd	354 000	2 500	141,6					-	M	M	MN
Marshal Industrials Ltd	-	2 250			(S)	8		-	M	M	C
Iron, Steel, Engineering and Electrical											
East Rand Engineering Co. Ltd	500 000	190	268,4	4				L	S	L	SP
African Cables Ltd	3 826 000	2 120	1 804,7					L	M	M	SP
Union Steel Corporation (SA)	7 170 000	-	-	11				L	M	M	MN, MP
ASEA Electric (SA) Ltd	3 597 000	1 364	2 637,1	9				L	M	M	MN, MD
Edward L. Bateman Ltd	917 000	2 500	366,8	6				MH	M	M	MD
Anglo-Transvaal Consolidated	29 170 000	90 000	324,6	40	(S)	57	18	MH	L	H	C
Fintec Ltd	290 000	900	322,2	2				L	S	L	MD
Vereeniging Refractories Ltd	6 006 000	5 000	1 201,2	8				L	L	H	H
Cullinan Holdings Ltd	4 974 000	4 000	1 243,5		(S)	27		L	M	M	C
Highveld Steel & Vanadium Corp.	86 937 000	3 668	23 701,5	4				L	M	M	MD
Consolidated Lighting Ltd	555 000	-	-	5				L	S	L	MD
National Bolts Ltd	13 200 000	2 500	5 282,0	6				L	M	M	MD
Globe Engineering Works Ltd	4 658 000	1 200	3 881,7	4				L	M	M	MD
Scottish Cables (SA) Ltd	1 309 000	940	1 392,5	-				L	S	L	MN
Field Industries Ltd	464 000	650	713,8	11				VL	S	L	MN, MD
International Combustion Ltd	784 000	1 300	603,1	5				L	M	M	MN, MD
African Oxygen Ltd	18 003 000	4 200	4 286,4	4				MH	M	M	MP
Stuarts & Lloyds (SA) Ltd	19 916 000	10 100	1 971,8		(S)	22	8	L	L	H	C
Patridge Transformers Ltd	29 000	50	580,2					MH	S	L	SP
Motor and Transport											
Datsun Nissan Bpk	14 712 000	5 028	2 922,2	12				L	M	M	MN, MD
Dunlop SA Ltd	12 316 000	5 000	2 463,2	5				L	M	M	MN, MD
Atkinson Oates Motors Ltd	949 000	2 735	347,0		(B)	39		L	M	M	MD
Lucy's Holdings Ltd	453 000	1 000	453,0		(B)	7		L	S	L	MD
Volkswagen SA Ltd	14 328 000	5 027	2 850,6					L	M	M	MN
Comair Holdings Ltd	963 000	700	1 375,5	7				L	S	L	MD
Bus Bodies SA Ltd	551 000	2 300	239,6		(B)	7		L	M	M	MN
Public Utility Transport Ltd	4 307 000	3 009	1 431,4	8				L	M	M	MD
Capital Cartoria Motor Holdings	506 000	600	843,3		(B)	20		L	S	L	MD

Table 5A (cont.)

	Total Assets/ Net Assets	Number of People Employed	Capital Intensity	No. of Divisions	Subsidiaries (S) Branches (B)		Associated Companies	Rate of Technological Change (a)	Size (b)	Structure Complexity (c)	Type of Organisational Structure (d)
Paper, Pulp, Containers & Timber											
Premier Paper Mills Ltd	15 947 000	1 000	15 947,0	5				L	S	L	MP
SAPPI Ltd	36 290 000	11 600	3 128,4	6				L	L	H	MP
Metal Box Co. SA Ltd	15 901 000	7 500	2 120,1	14				L	M	M	MN, MP
Metal Closures Group SA Ltd	1 300 000	700	1 857,1	8				L	S	L	MN
Evelyn Haddon & Co. Ltd	336 000	390	861,5	3				L	S	L	MD
Printing & Publishing											
SA Associated Newspapers Ltd	3 502 000	1 350	2 594,1	5				L	M	M	MD
CNA Investments Ltd	5 775 000	6 000	962,5	20				L	M	M	MD
Stores											
John Orr Holdings Ltd	2 724 000	2 831	-		(B)	25		-	M	M	MP (Chain)
Woolworths Holdings Ltd	3 549 000	2 710	-		(B)	61		-	M	M	MP (Chain)
Foschini	1 522 000	4 000	-	4				-	M	M	MP (Chain)
Edgars	443 000	7 500	-	7	(B)	500		-	M	M	MP (Chain)
Pick 'n Pay Ltd	2 298 000	2 400	-		(B)	28		-	M	M	MP (Chain)
OK Bazaars (1929) Ltd	15 872 000	16 000	-	7				-	L	H	MP (Chain)
Sugar											
Huletts Corporation Ltd	51 144 000	23 000	2 223,7	11				L	L	H	MP
Illovo Sugar Estates Ltd	8 815 000	5 400	1 632,4	3				L	M	M	MP
Tongaart Ltd	21 673 000	13 000	1 667,2	7				L	L	H	MP
Tobacco & Match											
Lion Match Co. Ltd	6 948 000	2 800	2 481,4	15				L	M	M	MN, MP
General											
Oil Companies : Mobil Oil SA Ltd	-	3 500	-					MH	M	M	MN, MP
Shell SA Ltd	-	2 617	-	5				MH	M	M	MN, MP
BP Southern Africa Ltd	-	450	-	4				-	S	L	MN, MP
Service : SA Marine Corp. Ltd	51 957 000	-	-					L	M	M	SP

Legend :

Rate of Technological Change (a)
VL = Very low
L = Low
MH = Medium high
H = High

Size (b)
S = Small up to 1 000 employees
M = Medium from 1 001 to 5 000 employees
L = Large from 5 001 upwards

Structure Complexity (c)
L = Low
M = Medium
H = High

Type of Organisational Structure (d)
SP = Single Plant
MP = Multi-plant
MN = Multi-national firm
MD = Multi-divisional firm
C = Conglomerate
H = Holding Company

GRAPH 6 – COMPANIES PRODUCING THEIR PLANS IN WRITTEN FORM (Question A(5))

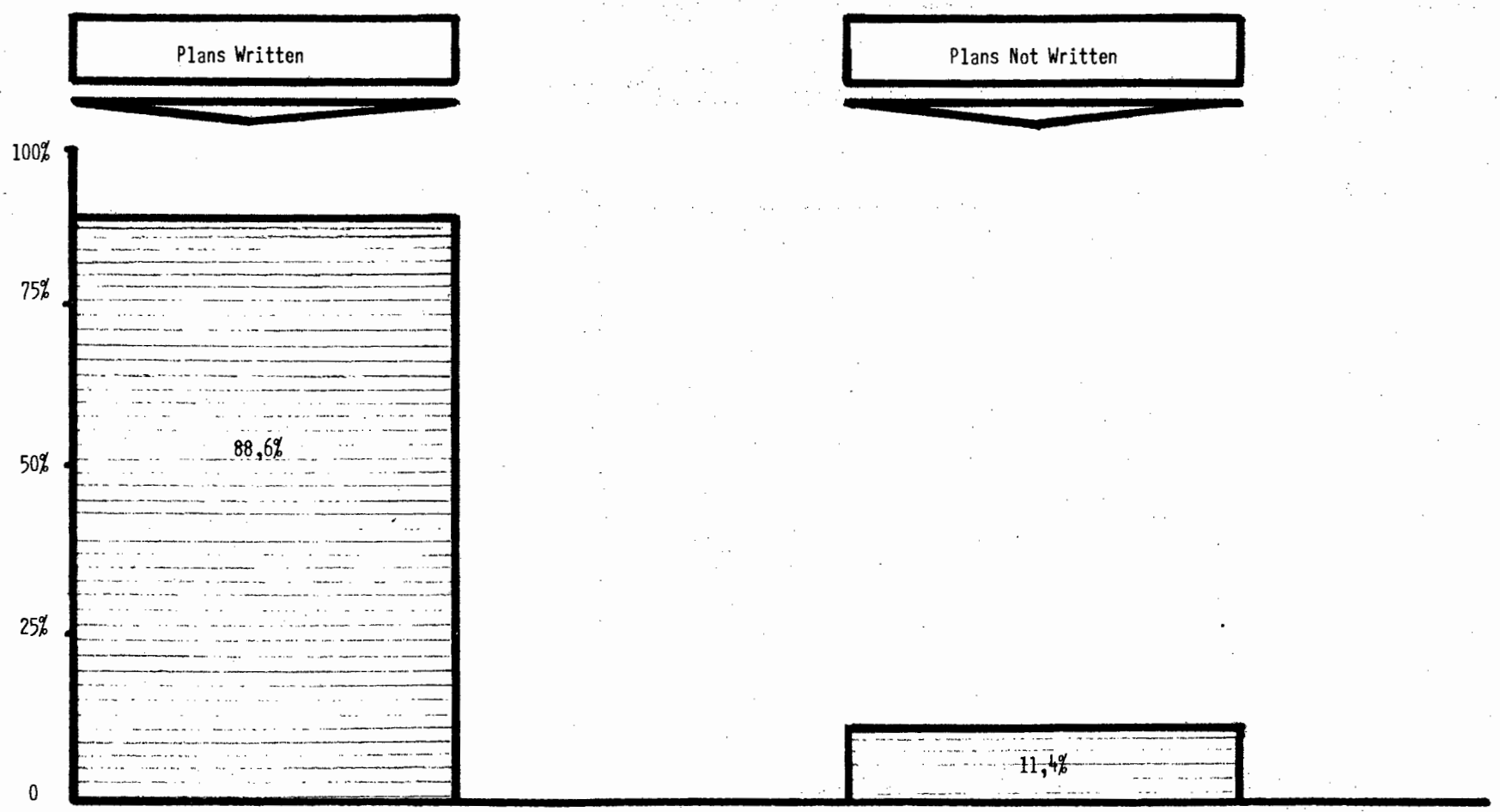


TABLE 6 : COMPANIES PRODUCING THEIR PLANS IN WRITTEN FORM (Question A(5))

Group	Plan		Total Planning Companies
	Written	Not Written	
Banks and Building Societies	4	1	5
Mining Companies			
Coal	2		2
Diamonds	2		2
Gold	1		1
Metals and Minerals	1		1
Financial Houses			
Mining			
Industrial	3	1	4
Industrial Trusts			
Insurance			
Property			
Industrial Organisations			
Beverages and Hotels	3	1	4
Building and Allied Industries	4	1	5
Chemicals	3		3
Clothing and Knitwear	3		3
Fishing			
Food			
Footwear and Leather		1	1
Furniture and Household Appliances	2	1	3
Iron, Steel, Engineering and Electrical	16		16
Motor and Transport	7		7
Paper, Pulp, Packages, Containers and Timber	4		4
Pharmaceutical and Medical			
Printing and Publishing	1	1	2
Stores	5	1	6
Sugar	3		3
Textiles, Carpets, Blankets and Yarns			
Tobacco and Match	1	1	2
Retailers and Wholesalers			
General			
Oil Companies	4		4
Service (Travel, Dry Cleaners, etc.)	1		1
Other			
Total	70	9	79

TABLE 6A : IS THE PLAN REVISED? (Question A(6))

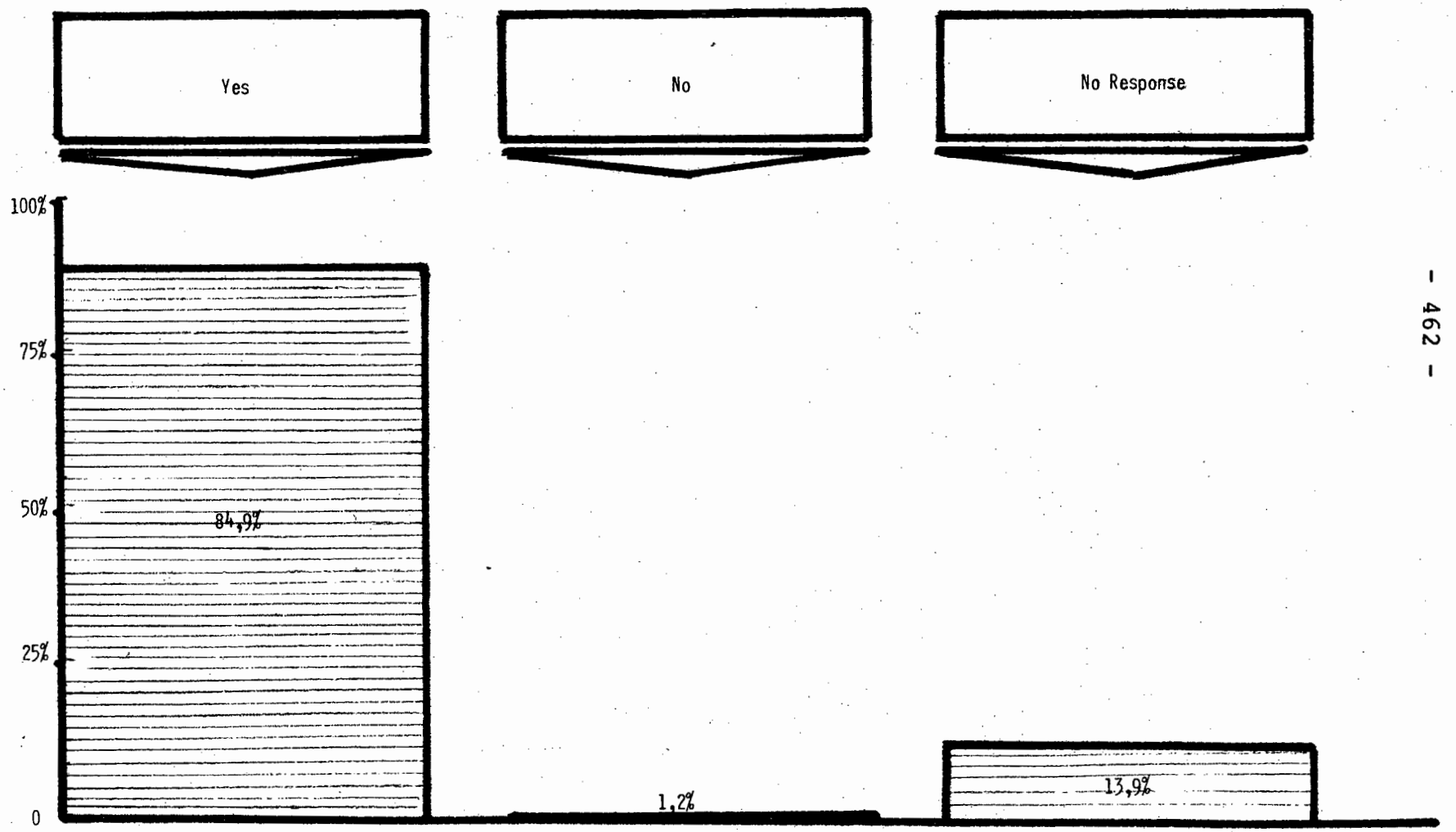


TABLE 6A : IS THE PLAN REVISED? (Question A(6))

Group	Yes	No	No Response	Total Planning Companies
Banks and Building Societies	4		1	5
Mining Companies				
Coal	2			2
Diamonds	1		1	2
Gold	1			1
Metals and Minerals			1	1
Financial Houses				
Mining				
Industrial	3		1	4
Industrial Trusts				
Insurance				
Property				
Industrial Organisations				
Beverages and Hotels	1		3	4
Building and Allied Industries	5			5
Chemicals	3			3
Clothing and Knitwear	3			3
Fishing				
Food				
Footwear and Leather			1	1
Furniture and Household Appliances	3			3
Iron, Steel, Engineering and Electrical	15	1		16
Motor and Transport	7			7
Paper, Pulp, Packages, Containers and Timber	4			4
Pharmaceutical and Medical				
Printing and Publishing	2			2
Stores	6			6
Sugar	3			3
Textiles, Carpets, Blankets and Yarns				
Tobacco and Match	1		1	2
Retailers and Wholesalers				
General				
Oil Companies	3		1	4
Service (Travel, Dry Cleaners, etc.)			1	1
Other				
Total	67	1	11	79

GRAPH 7 : STAFF-LINE RESPONSIBILITY IN PLANNING (Question A(7))

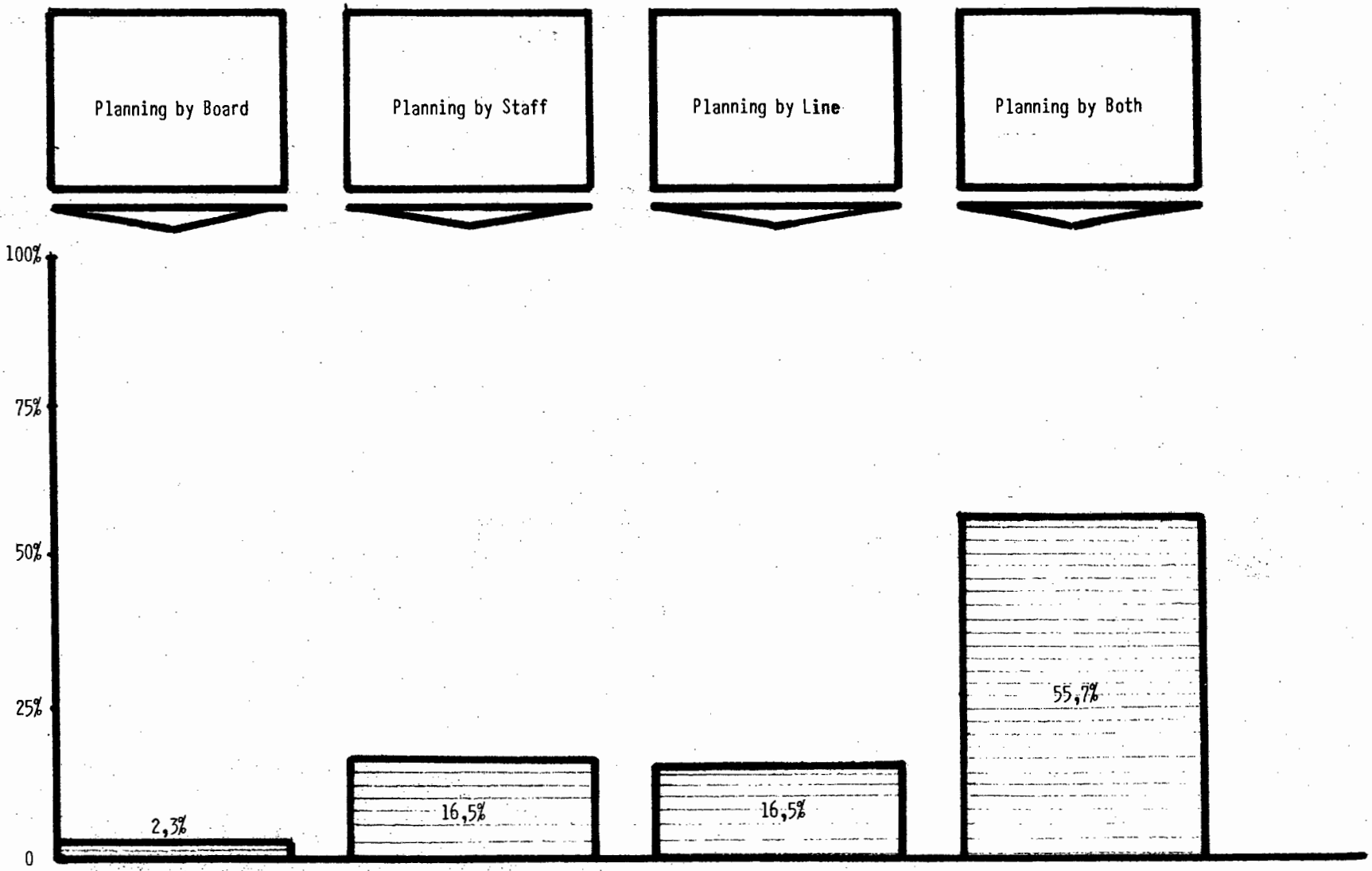


TABLE 7 : STAFF-LINE RESPONSIBILITY IN PLANNING (Question A(7))

Group	Board		Staff		Line		Both		No Response	Total Planning Companies
	Yes	No	Yes	No	Yes	No	Yes	No		
Banks and Building Societies		4	1	3	1	3	2	2	1	5
Mining Companies										
Coal		2		2	2			2		2
Diamonds		2		2		2	2			2
Gold		1		1		1	1			1
Metals and Minerals		1	1			1		1		1
Financial Houses										
Mining										
Industrial		3	1	2	1	2	1	2	1	4
Industrial Trusts										
Insurance										
Property										
Industrial Organisations										
Beverages and Hotels	1	1	1	1		2	1	1	2	4
Building and Allied Industries		5	1	4	2	3	2	3		5
Chemicals		3	1	2	1	2	1	2		3
Clothing and Knitwear		3	1	2		3	2	1		3
Fishing										
Food										
Footwear and Leather		1		1		1	1			1
Furniture and Household Appliances		3	1	2	1	2	1	2		3
Iron, Steel, Engineering and Electrical	1	14	2	13	2	13	10	5	1	16
Motor and Transport		6		6		6	6		1	7
Paper, Pulp, Packages, Containers and Timber		4	2	2	1	3	1	3		4
Pharmaceutical and Medical										
Printing and Publishing		2		2		2	2			2
Stores		6		6		6	6			6
Sugar		3		3	1	2	2	1		3
Textiles, Carpets, Blankets and Yarns										
Tobacco and Match		1		1	1			1		1
Retailers and Wholesalers										
General										
Oil Companies		3	1	2		3	2	1	1	4
Service (Travel, Dry Cleaners, etc,)		1		1		1	1			1
Other										
Total	2	69	13	58	13	58	44	27	8	79

GRAPH 8 : COMPANIES WITH UNITS EXCLUSIVELY ENGAGED IN LONG-RANGE PLANNING (Question B)

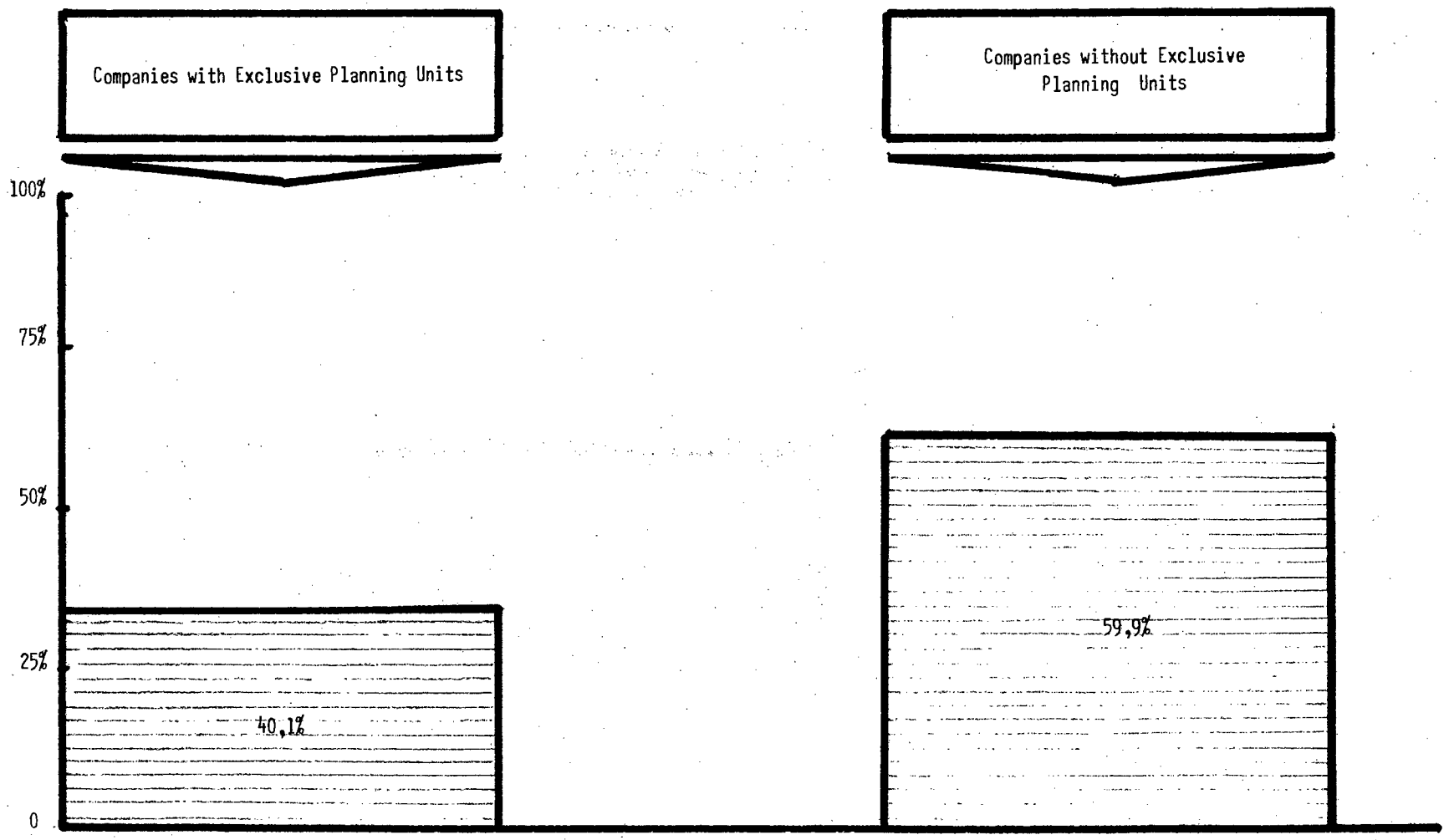


TABLE 8 : COMPANIES WITH UNITS EXCLUSIVELY ENGAGED IN LONG-RANGE PLANNING (Question B)

Group	Number of Companies	Number of People Employed	Total Planning Companies
Banks and Building Societies	3	1, 2, 3	5
Mining Companies			
Coal			2
Diamonds	1	7	2
Gold			1
Metals and Minerals	1	3	1
Financial Houses			
Mining			
Industrial	3	1, 3, 1	4
Industrial Trusts			
Insurance			
Property			
Industrial Organisations			
Beverages and Hotels	1	Not indicated	4
Building and Allied Industries	1	2	5
Chemicals			3
Clothing and Knitwear			3
Fishing			
Food			
Footwear and Leather			1
Furniture and Household Appliances			3
Iron, Steel, Engineering and Electrical	5	1, 2, 6, 2	16
Motor and Transport	3	5	7
Paper, Pulp, Packages, Containers and Timber	3	1, 2, 6	4
Pharmaceutical and Medical			
Printing and Publishing	1	3	2
Stores	3	8, 5, 2	6
Sugar	3	2, 1, 2	3
Textiles, Carpets, Blankets and Yarns			
Tobacco and Match	1	5	2
Retailers and Wholesalers			
General			
Oil Companies	3	26, 6, 4, 8	4
Service (Travel, Dry Cleaners, etc.)			1
Other			
Total	32		79

Table 9 (cont.)

- Changing environment, competitive action, development of group by acquisitions
- Expansion funds required
- To coordinate and formalise the group's long-range planning
- To centralise formal planning activities and remove the burden of medium-term and long-term planning from line management

TABLE 9A

JOB DESCRIPTION AND SPECIFICATION

1. Designation

Group Planner

2. Purpose

To recommend and, after approval, implement, a basis of Group long range planning with a view to producing a long range plan for ATC itself incorporating the individual Group companies' long range plans.

3. Qualifications Required

3.1. A recognised academic qualification, preferably in accounting or economics and commerce or a recognised equivalent thereof.

3.2. Practical experience in accounting and financial matters with an ability to analyse detail and make firm recommendations arising therefrom.

3.3. Possess imagination in all fields appertaining to the purpose of his job and consequently an ability to adapt his thinking in the light of new methods, ideas and developments and preferably based on practical managerial experience.

3.4. A willingness to accept responsibility and authority with the ability to delegate where necessary and advisable.

3.5. A willingness and ability to co-operate not only with senior Anglovaal personnel but with all levels of management throughout the Group.

4. Appointment

Appointed by the Managing Director.

5. Organisational Relationships

(Refer to Anglovaal Head Office Chart dated 17th November, 1971)

5.1. / ....

5.1. Accountable to the Managing Director.

5.2. Liaison with all members of Anglovaal Head Office and Group staff, but with more specific reference to a very close liaison with :-

General Manager
Technical Director
Executive Director (Mines)
Executive Director (Industries)

6. Authority

6.1. Granted by the Managing Director :-

6.1.1. To initiate investigations into ways and means of maintaining and improving the standard of long range planning throughout the Anglovaal Group. For this purpose he has the authority to request officials through the recognised channels of communication for any data which he may deem necessary.

6.1.2. To present, in terms of a timetable to be recommended by him, an annual long range plan for ATC incorporating Group companies' plans.

6.1.3. To request assistance through the General Manager for detailed figuring and preparation of data in Head Office.

6.2. His authority is limited in that :-

6.2.1. He has no executive authority vis-à-vis Anglovaal itself or any of the Group companies, and no power to bind Anglovaal or any Group company in any agreement without specific authority to do so either by the Board of a company or the Managing Directors of Anglovaal.

7. Responsibilities in terms of Authority

7.1. To ensure that the purpose of his job as set out above is performed in detail as efficiently as possible and bearing in mind that the prime purpose of a long range plan is a tool of management.

7.2. To communicate to companies in the Group, through the recognised channels of communication, overall planning assumptions previously endorsed by the Managing Directors.

7.3. To report on the quality of the long range planning throughout the Group and to encourage the training of all levels of Group staff in the field of long range planning.

7.4. To liaise with those set out in 5.2. above in regard to all technical and non-technical aspects of planning, with more specific reference to the Group's subsidiary and associated companies.

7.5. To submit the annual planning timetable to the Managing Directors and to keep the Managing Directors aware of progress being made throughout the Group from time to time, not only in adhering to the timetable but in regard to the quality of the planning and the actual performance compared with the plan, such written reports to be made at least quarterly for submission to the Executive Committee.

7.6. To co-operate with those concerned in making recommendations and finalising Group policy in regard to investment/disinvestment in any company and/or new project, with specific reference to the Group's long range plan, and to draw attention to any variances that may appear evident to him from time to time at any levels in Group operations.

7.7. To ensure that he is available from time to time to be a member of Head Office committees, as more fully set out in the attached schedule.

SJNM/AT
17th November, 1971

GRAPH 10A : PLANNING EFFORT TO BE ACCOMPLISHED AND USES OF PLANS DEFINED BY THE CHIEF OFFICER (Question 1)

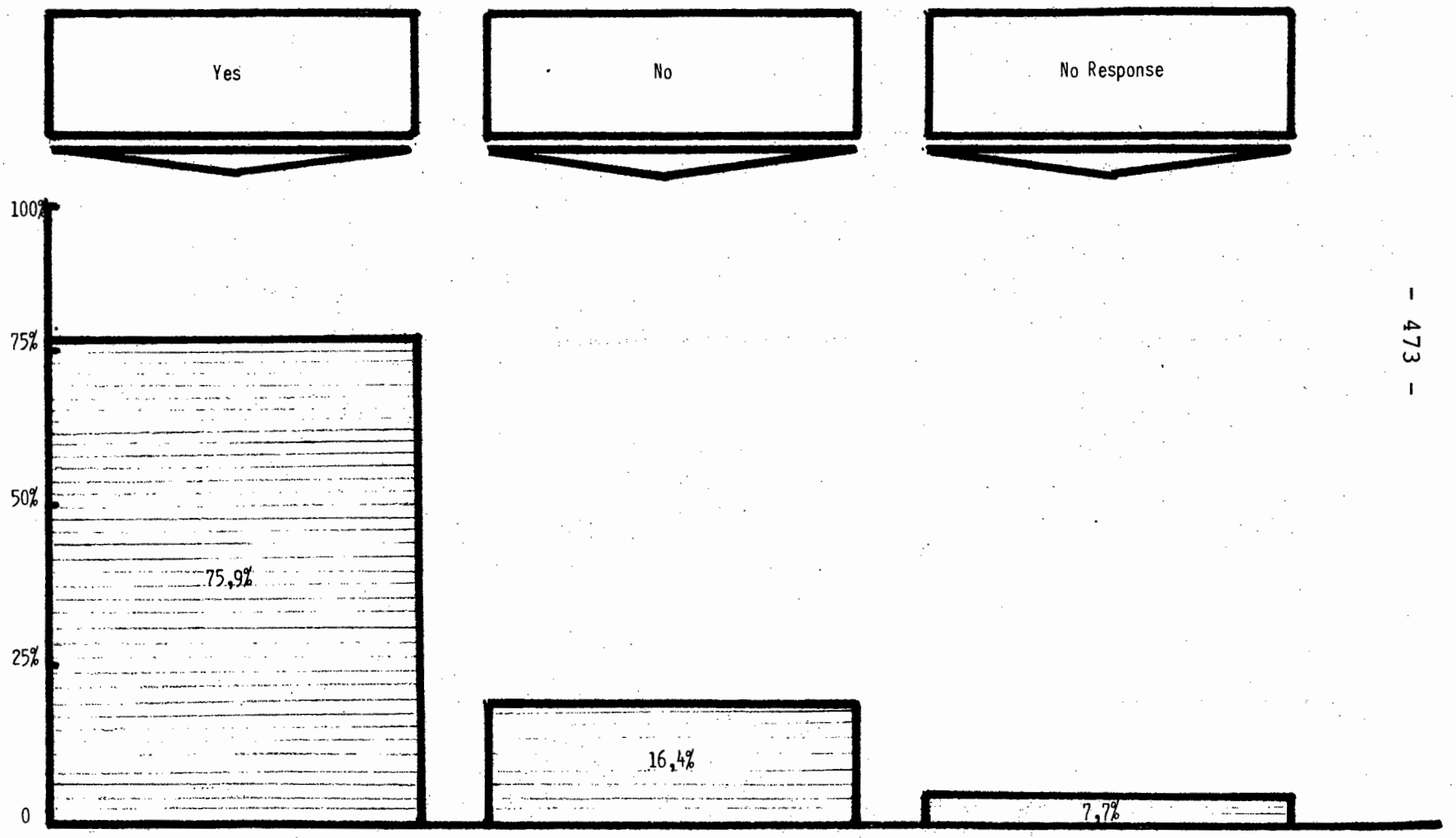


TABLE 10A : PLANNING EFFORT TO BE ACCOMPLISHED AND USES OF PLANS DEFINED BY THE CHIEF OFFICER
(Question 1)

Group	Yes	No	No Response	Total Planning Companies
Banks and Building Societies	4	1		5
Mining Companies				
Coal		2		2
Diamonds	2			2
Gold	1			1
Metals and Minerals	1			1
Financial Houses				
Mining				
Industrial	3		1	4
Industrial Trusts				
Insurance				
Property				
Industrial Organisations				
Beverages and Hotels	1	1	2	4
Building and Allied Industries	4	1		5
Chemicals	3			3
Clothing and Knitwear	2	1		3
Fishing				
Food				
Footwear and Leather		1		1
Furniture and Household Appliances	1	1	1	3
Iron, Steel, Engineering and Electrical	14	2		16
Motor and Transport	5	2		7
Paper, Pulp, Packages, Containers and Timber	3		1	4
Pharmaceutical and Medical				
Printing and Publishing	2			2
Stores	5	1		6
Sugar	3			3
Textiles, Carpets, Blankets and Yarns				
Tobacco and Match	1		1	2
Retailers and Wholesalers				
General				
Oil Companies	4			4
Service (Travel, Dry Cleaners, etc.)	1			1
Other				
Total	60	13	6	79

GRAPH 10B : THE CHIEF EXECUTIVE STATEMENT ON PLANNING EFFORTS COMMUNICATED TO EVERYBODY AFFECTED BY PLANNING (Question 2)

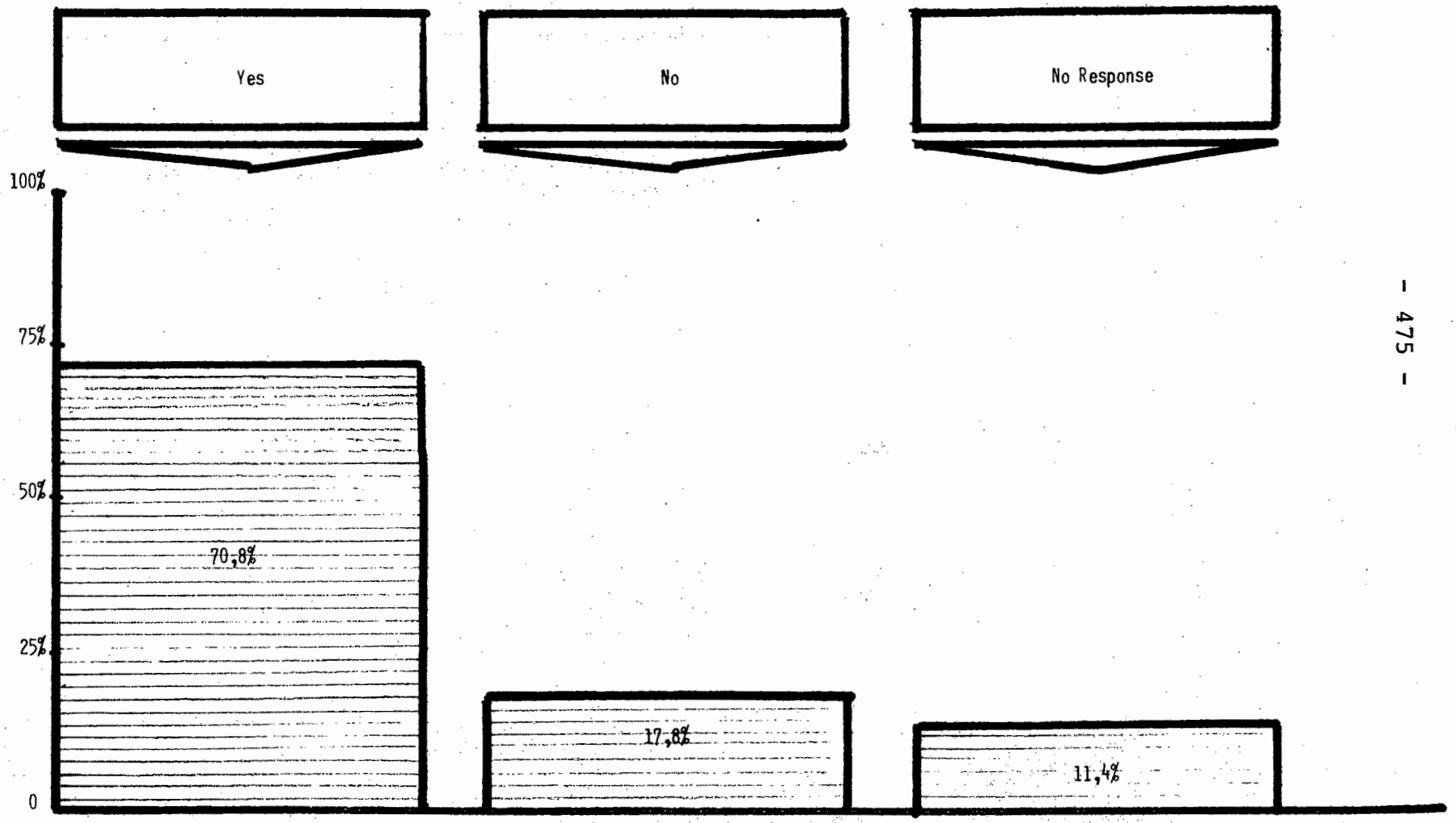


TABLE 10B : THE CHIEF EXECUTIVE'S STATEMENT ON PLANNING EFFORTS COMMUNICATED TO EVERYBODY AFFECTED BY PLANNING (Question 2)

Group	Yes	No	No Response	Total Planning Companies
Banks and Building Societies	4	1		5
Mining Companies				
Coal		2		2
Diamonds	2			2
Gold	1			1
Metals and Minerals	1			1
Financial Houses				
Mining				
Industrial	3	1		4
Industrial Trusts				
Insurance				
Property				
Industrial Organisations				
Beverages and Hotels	1	1	2	4
Building and Allied Industries	4		1	5
Chemicals	3			3
Clothing and Knitwear	2	1		3
Fishing				
Food				
Footwear and Leather		1		1
Furniture and Household Appliances	1	1	1	3
Iron, Steel, Engineering and Electrical	12	3	1	16
Motor and Transport	5	1	1	7
Paper, Pulp, Packages, Containers and Timber	3		1	4
Pharmaceutical and Medical				
Printing and Publishing	2			2
Stores	5		1	6
Sugar	3			3
Textiles, Carpets, Blankets and Yarns				
Tobacco and Match		1	1	2
Retailers and Wholesalers				
General				
Oil Companies	3	1		4
Service (Travel, Dry Cleaners, etc.)	1			1
Other				
Total	56	14	9	79

GRAPH 10C : STAFF ASSISTANCE AND FACILITIES PROVIDED FOR OPERATING MANAGERS (Question 3)

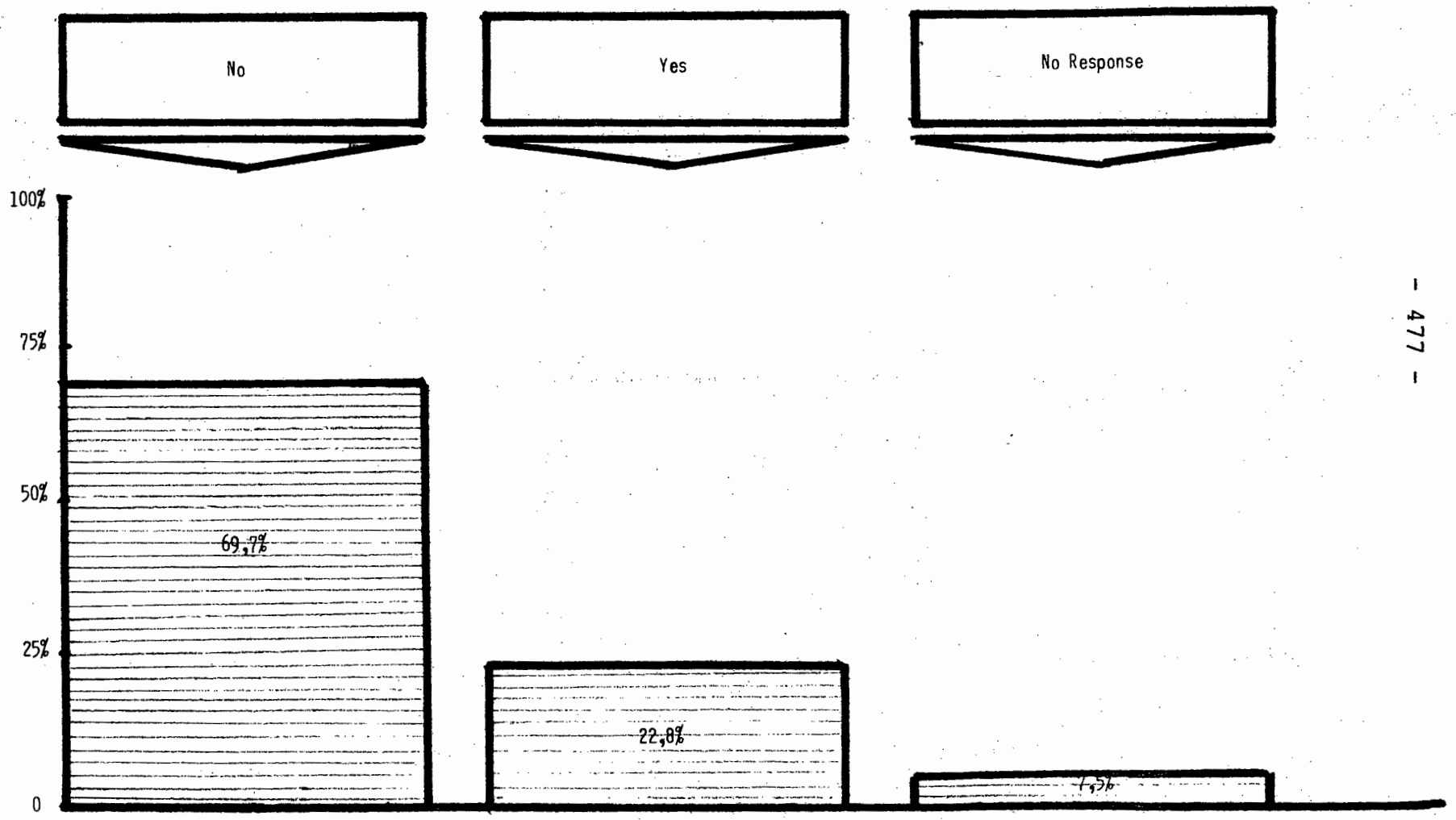


TABLE 10C : STAFF ASSISTANCE AND FACILITIES PROVIDED FOR OPERATING MANAGERS (Question 3)

Group	Yes	No	No Response	Total Planning Companies
Banks and Building Societies	4	1		5
Mining Companies				
Coal	1	1		2
Diamonds	2			2
Gold	1			1
Metals and Minerals	1			1
Financial Houses				
Mining	3		1	4
Industrial				
Industrial Trusts				
Insurance				
Property				
Industrial Organisations				
Beverages and Hotels	1	1	2	4
Building and Allied Industries	4	1		5
Chemicals	3			3
Clothing and Knitwear	1	2		3
Fishing				
Food				
Footwear and Leather		1		1
Furniture and Household Appliances	2	1		3
Iron, Steel, Engineering and Electrical	12	2	2	16
Motor and Transport	4	3		7
Paper, Pulp, Packages, Containers and Timber	2	2		4
Pharmaceutical and Medical				
Printing and Publishing	2			2
Stores	5	1	6	6
Sugar	3			3
Textiles, Carpets, Blankets and Yarns				
Tobacco and Match		2		2
Retailers and Wholesalers				
General				
Oil Companies	3		1	4
Service (Travel, Dry Cleaners, etc.)	1			1
Other				
Total	55	18	6	79

GRAPH 10D : SPECIFIC IMPLEMENTATION PLANS ELABORATED BY OPERATING MANAGERS WITH STAFF ASSISTANCE OR TOP MANAGEMENT HELP (Question 4)

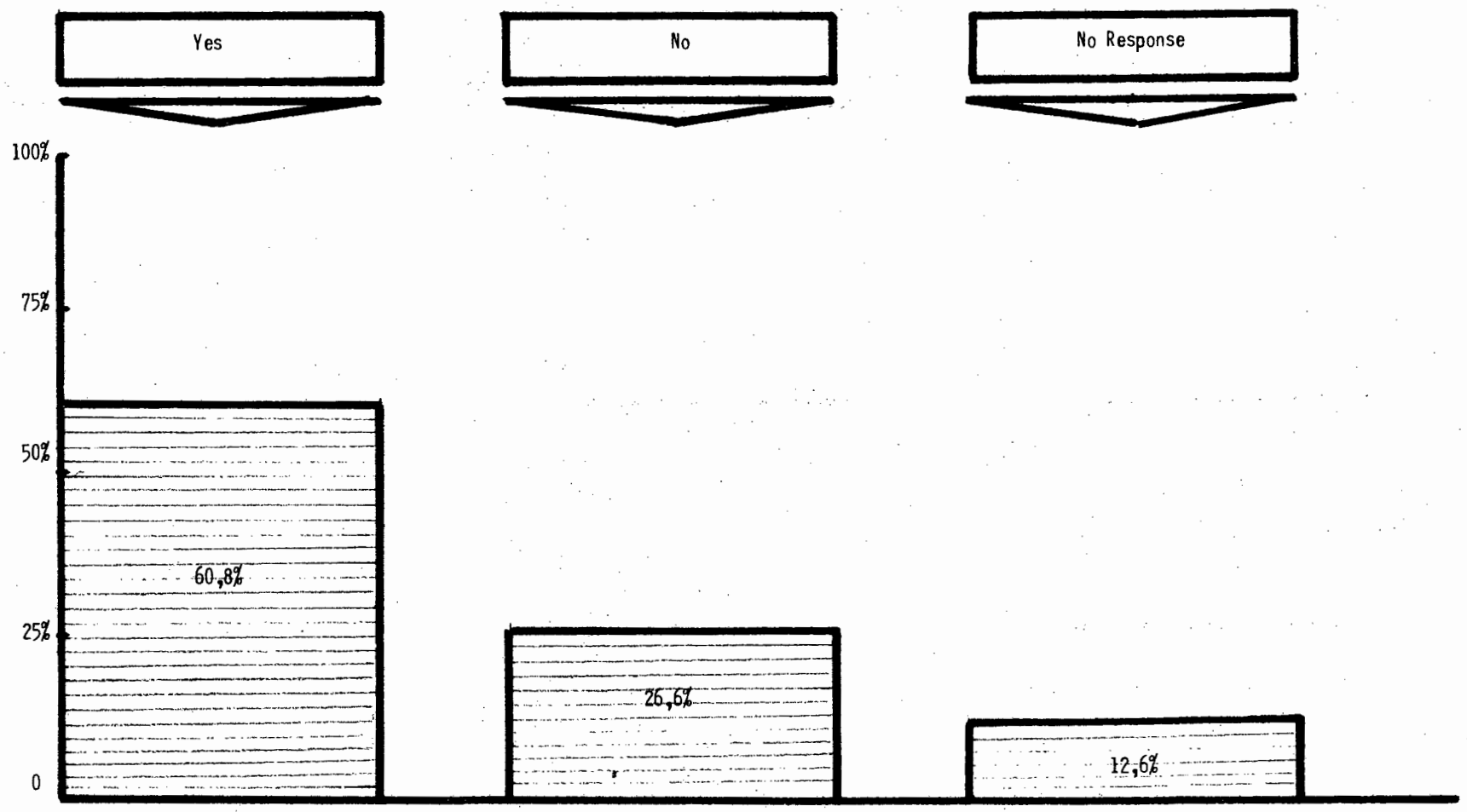


TABLE 10D : SPECIFIC IMPLEMENTATION PLANS ELABORATED BY OPERATING MANAGERS WITH STAFF ASSISTANCE OR TOP MANAGEMENT HELP (Question 4)

Group	Yes	No	No Response	Total Planning Companies
Banks and Building Societies	3	1	1	5
Mining Companies				
Coal	1	1		2
Diamonds	2			2
Gold	1			1
Metals and Minerals	1			1
Financial Houses				
Mining				
Industrial	1	2	1	4
Industrial Trusts				
Insurance				
Property				
Industrial Organisations				
Beverages and Hotels	1	1	2	4
Building and Allied Industries	3	1	1	5
Chemicals	2	1		3
Clothing and Knitwear	1	2		3
Fishing				
Food				
Footwear and Leather		1		1
Furniture and Household Appliances	1	2		3
Iron, Steel, Engineering and Electrical	9	5	2	16
Motor and Transport	5	1	1	7
Paper, Pulp, Packages, Containers and Timber	3	1		4
Pharmaceutical and Medical				
Printing and Publishing	1	1		2
Stores	6			6
Sugar	2	1		3
Textiles, Carpets, Blankets and Yarns				
Tobacco and Match	1		1	2
Retailers and Wholesalers				
General				
Oil Companies	3		1	4
Service (Travel, Dry Cleaners, etc.)	1			1
Other				
Total	48	21	10	79

GRAPH 11 : BALANCE BETWEEN STAFF AND LINE PARTICIPATION AND RESPONSIBILITY MAINTAINED (Question 5)

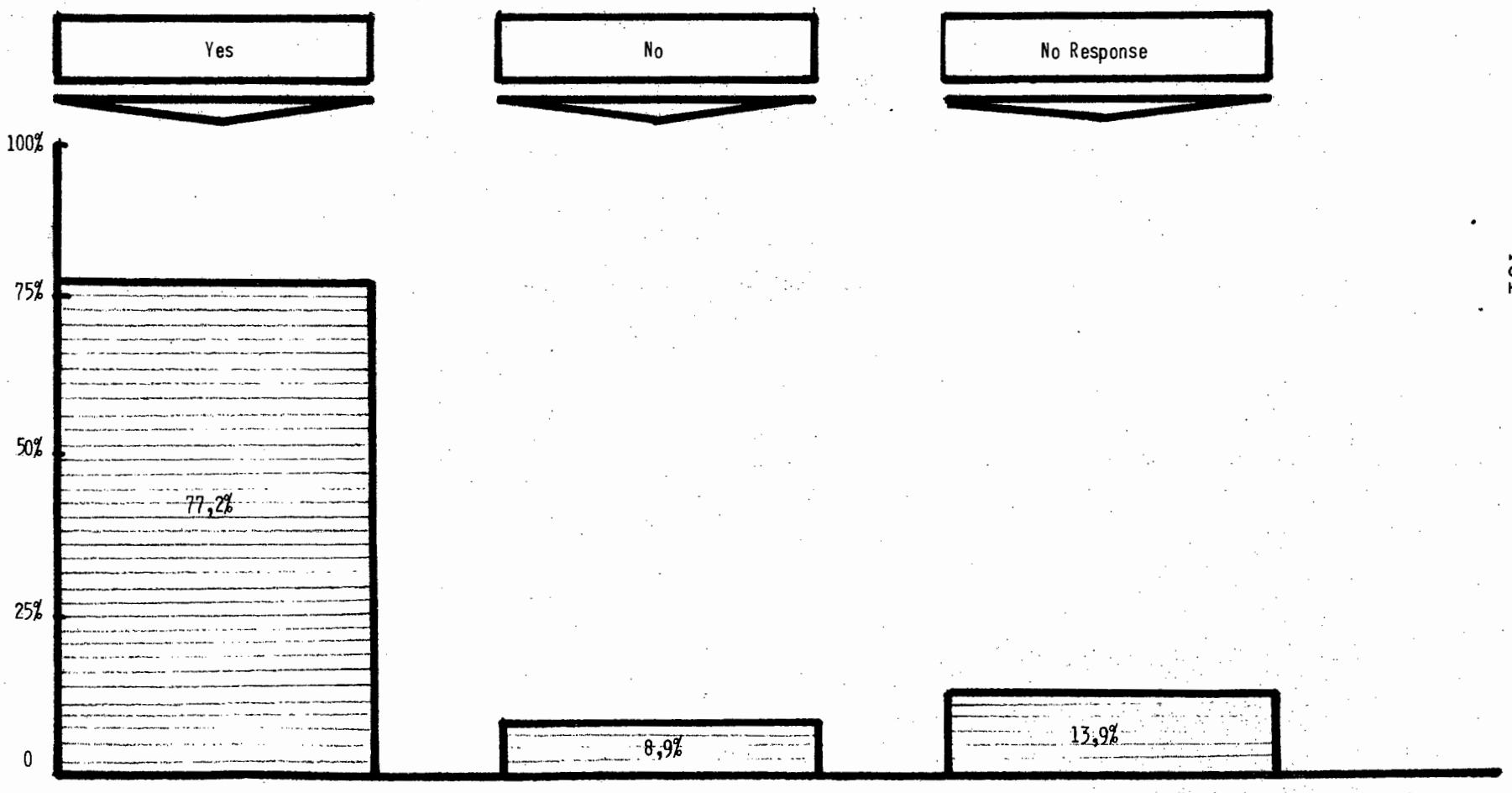


TABLE 11 : BALANCE BETWEEN STAFF AND LINE PARTICIPATION AND RESPONSIBILITY MAINTAINED (Question 5)

Group	Yes	No	No Response	Total Planning Companies
Banks and Building Societies	4		1	5
Mining Companies				
Coal	1		1	2
Diamonds	2			2
Gold	1			1
Metals and Minerals	1			1
Financial Houses				
Mining				
Industrial	3		1	4
Industrial Trusts				
Insurance				
Property				
Industrial Organisations				
Beverages and Hotels	1	1	2	4
Building and Allied Industries	4		1	5
Chemicals	3			3
Clothing and Knitwear	3			3
Fishing				
Food				
Footwear and Leather		1		1
Furniture and Household Appliances	2	1		3
Iron, Steel, Engineering and Electrical	12	3	1	16
Motor and Transport	1		1	7
Paper, Pulp, Packages, Containers and Timber	3		1	4
Pharmaceutical and Medical				
Printing and Publishing	2			2
Stores	5	1		6
Sugar	3			3
Textiles, Carpets, Blankets and Yarns				
Tobacco and Match	1		1	2
Retailers and Wholesalers				
General				
Oil Companies	3		1	4
Service (Travel, Dry Cleaners, etc.)	1			1
Other				
Total	61	7	11	79

GRAPH 12 : PLANNING ASSUMPTIONS WRITTEN DOWN (Question 6)

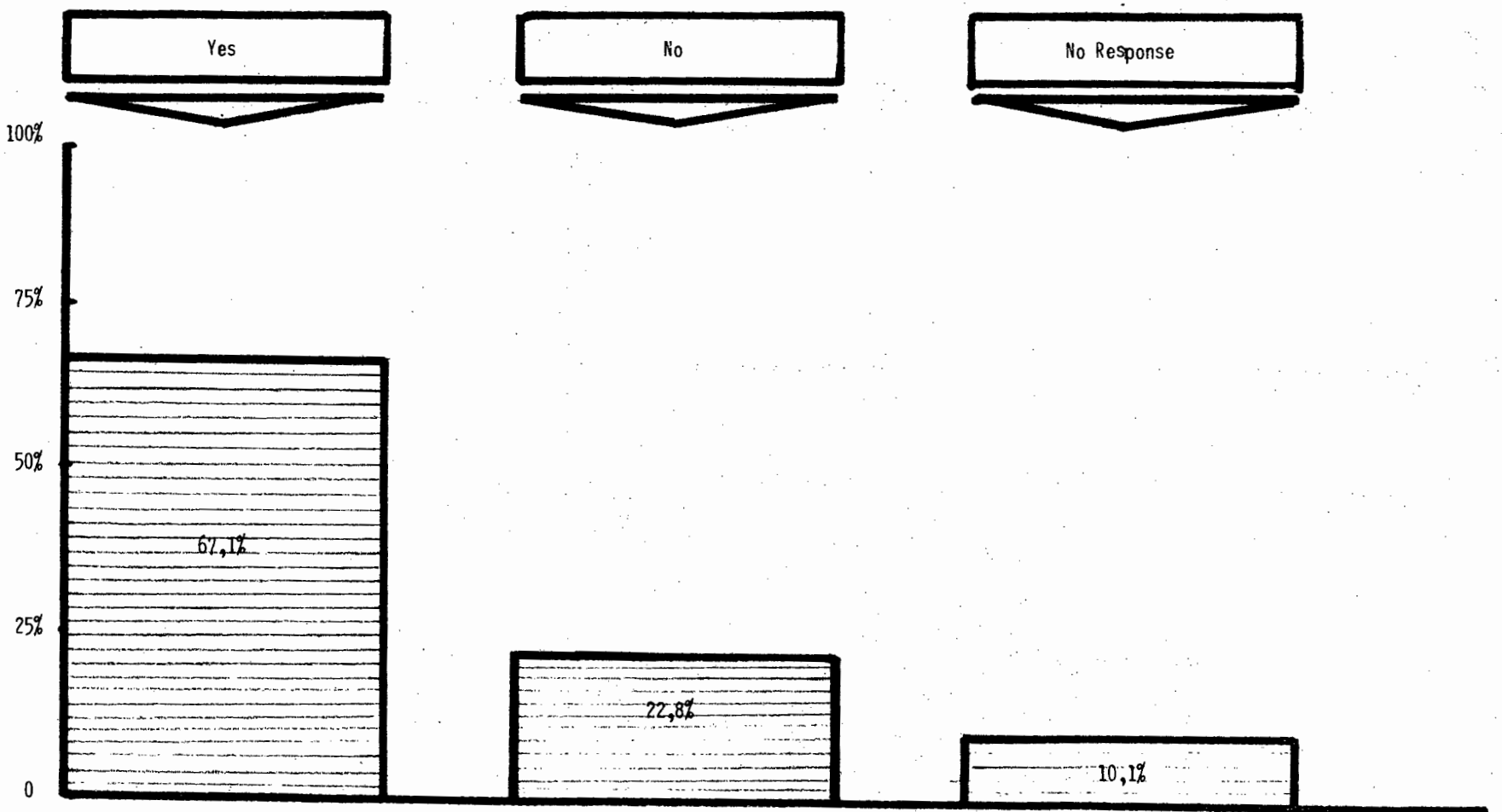


TABLE 12 : PLANNING ASSUMPTIONS WRITTEN DOWN (Question 6)

Group	Yes	No	No Response	Total Planning Companies
Banks and Building Societies	3	1	1	5
Mining Companies				
Coal		2		2
Diamonds	2			2
Gold	1			1
Metals and Minerals	1			1
Financial Houses				
Mining				
Industrial	3		1	4
Industrial Trusts				
Insurance				
Property				
Industrial Organisations				
Beverages and Hotels	2		2	4
Building and Allied Industries	3	2		5
Chemicals	1	2		3
Clothing and Knitwear	2	1		3
Fishing				
Food				
Footwear and Leather		1		1
Furniture and Household Appliances	2	1		3
Iron, Steel, Engineering and Electrical	14	1	1	16
Motor and Transport	3	4		7
Paper, Pulp, Packages, Containers and Timber	3		1	4
Pharmaceutical and Medical				
Printing and Publishing	1	1		2
Stores	4	2		6
Sugar	3			3
Textiles, Carpets, Blankets and Yarns				
Tobacco and Match	1		1	2
Retailers and Wholesalers				
General				
Oil Companies	3		1	4
Service (Travel, Dry Cleaners, etc.)	1			1
Other				
Total	53	18	8	79

GRAPH 13 : ACTION STEPS ASSIGNED TO INDIVIDUALS WITHIN A TIMETABLE OF ACCOMPLISHMENT (Question 7)

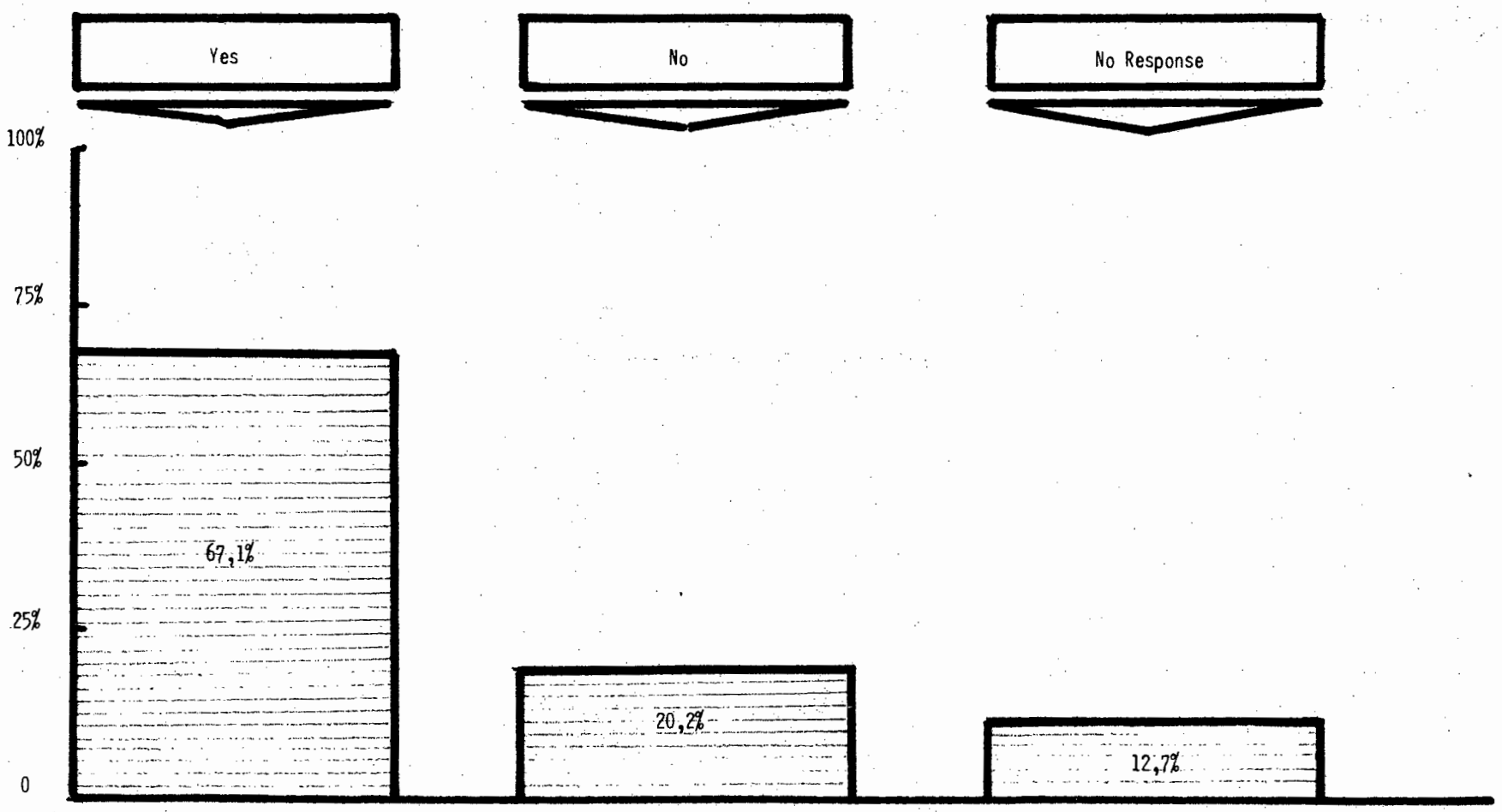


TABLE 13 : ACTION STEPS ASSIGNED TO INDIVIDUALS WITHIN A TIMETABLE OF ACCOMPLISHMENT (Question 7)

Group	Yes	No	No Response	Total Planning Companies
Banks and Building Societies	4		1	5
Mining Companies				
Coal		2		2
Diamonds	2			2
Gold	1			1
Metals and Minerals	1			1
Financial Houses				
Mining				
Industrial	2	1	1	4
Industrial Trusts				
Insurance				
Property				
Industrial Organisations				
Beverages and Hotels	1	1	2	4
Building and Allied Industries	4	1		5
Chemicals	2	1		3
Clothing and Knitwear	1	2		3
Fishing				
Food				
Footwear and Leather		1		1
Furniture and Household Appliances	1	2		3
Iron, Steel, Engineering and Electrical	14	1	1	16
Motor and Transport	3	2	2	7
Paper, Pulp, Packages, Containers and Timber	3		1	4
Pharmaceutical and Medical				
Printing and Publishing	2			2
Stores	4	2		6
Sugar	3			3
Textiles, Carpets, Blankets and Yarns				
Tobacco and Match	1		1	2
Retailers and Wholesalers				
General				
Oil Companies	3		1	4
Service (Travel, Dry Cleaners, etc.)	1			1
Other				
Total	53	16	10	79

TABLE 13A

N.B.S. ANNUAL PLANNING CYCLE

	DEADLINE DATE
PROPOSED BRANCH DEVELOPMENT PROGRAMME AND STAFF FORECAST SUBMITTED TO HEAD OFFICE	30TH SEPTEMBER
PROVISIONAL DEVELOPMENT PROGRAMME APPROVED BY HEAD OFFICE. RETURNED TO BRANCHES.	15TH NOVEMBER
HEAD OFFICE PLANNING COMMITTEE MEETS. FIXES PROVISIONAL GROWTH OBJECTIVES FOR FORTHCOMING YEAR. COMMUNICATES THESE TO BRANCHES.	31ST DECEMBER
BRANCHES SUBMIT TO HEAD OFFICE: (i) PROVISIONAL BRANCH BUDGET. (ii) INITIAL GROWTH TARGETS. (iii) STAFF TARGETS FOR FORTHCOMING YEAR. (iv) ADMIN. and CLIENT SERVICE TARGETS.	1ST FEBRUARY
HEAD OFFICE PLANNING COMMITTEE CONSIDERS: (i) FINAL BRANCH DEVELOPMENT PROGRAMME. (ii) FINAL GROWTH OBJECTIVE FOR SOCIETY. (iii) SOCIETY'S BUDGET FOR FORTHCOMING YEAR AND THE LIKELY EFFECT OF ONE RESULT ON THE OTHER. BRANCHES ADVISED OF ANY CHANGES NECESSARY.	28TH FEBRUARY
HEAD OFFICE TO NEGOTIATE AND AGREE WITH INDIVIDUAL BRANCHES: (i) FINAL BRANCH BUDGETS. (ii) FINAL GROWTH TARGETS. (iii) STAFF RESULTS. (iv) ADMIN. and CLIENT SERVICE RESULTS.	31ST MARCH
REVIEW FIRST QUARTER'S RESULTS AND RE-NEGOTIATE STANDARDS WHERE NECESSARY	BY 31ST AUGUST
R E - C Y C L E	30TH SEPTEMBER

GRAPH 14 : PARTICIPATIONOF THOSE WHO WILL BE CARRYING OUT THE PLAN IN THE PLANNING PROCESS (Question 8)

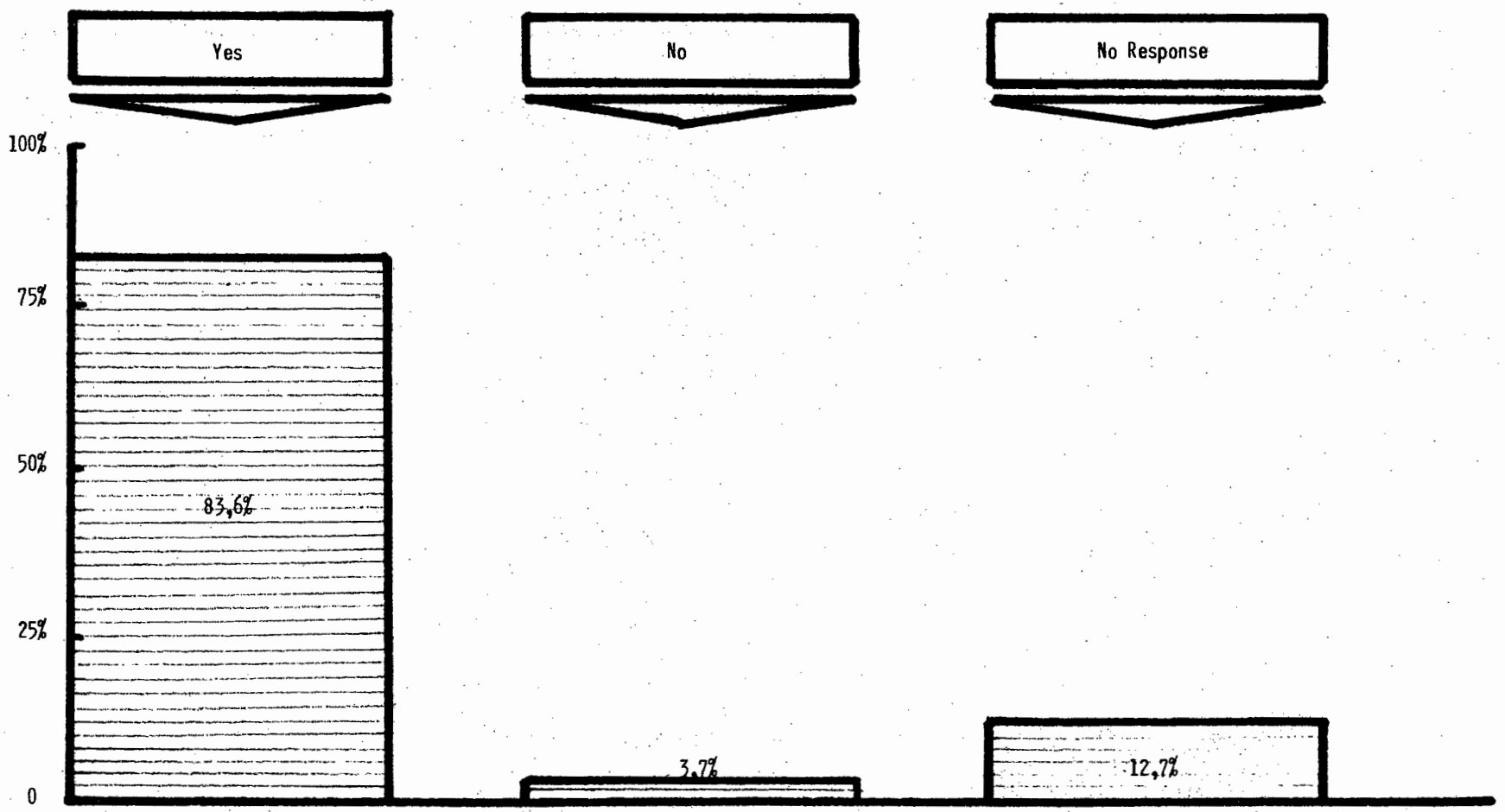


TABLE 14 : PARTICIPATION OF THOSE WHO WILL BE CARRYING OUT THE PLAN IN THE PLANNING PROCESS (Question 8)

Group	Yes	No	No Response	Total Planning Companies
Banks and Building Societies	4		1	5
Mining Companies				
Coal	1	1		2
Diamonds	2			2
Gold	1			1
Metals and Minerals	1			1
Financial Houses				
Mining				
Industrial	3		1	4
Industrial Trusts				
Insurance				
Property				
Industrial Organisations				
Beverages and Hotels	1	1	2	4
Building and Allied Industries	4		1	5
Chemicals	3			3
Clothing and Knitwear	3			3
Fishing				
Food				
Footwear and Leather		1		1
Furniture and Household Appliances	3			3
Iron, Steel, Engineering and Electrical	15		1	16
Motor and Transport	6		1	7
Paper, Pulp, Packages, Containers and Timber	3		1	4
Pharmaceutical and Medical				
Printing and Publishing	2			2
Stores	6			6
Sugar	3			3
Textiles, Carpets, Blankets and Yarns				
Tobacco and Match	1		1	2
Retailers and Wholesalers				
General				
Oil Companies	3		1	4
Service (Travel, Dry Cleaners, etc.)	1			1
Other				
Total	66	3	10	79

GRAPH 15 : PLANNING CLIMATE (Question 9)

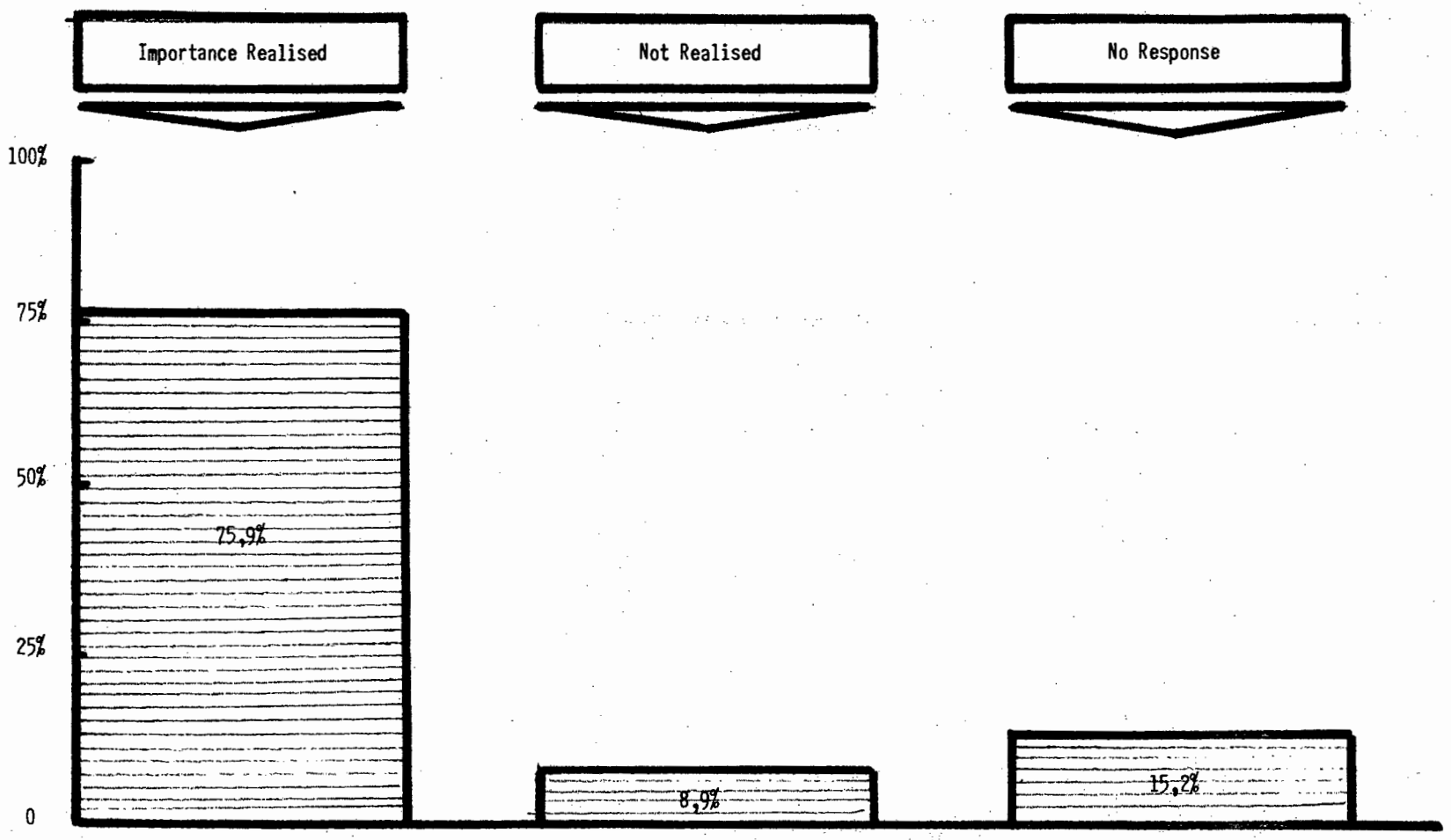


TABLE 15 : PLANNING CLIMATE (Question 9)

Group	Yes	No	No Response	Total Planning Companies
Banks and Building Societies	4		1	5
Mining Companies				
Coal		2		2
Diamonds	2			2
Gold	1			1
Metals and Minerals	1			1
Financial Houses				
Mining				
Industrial	3		1	4
Industrial Trusts				
Insurance				
Property				
Industrial Organisations				
Beverages and Hotels	2		2	4
Building and Allied Industries	4		1	5
Chemicals	2		1	3
Clothing and Knitwear	3			3
Fishing				
Food				
Footwear and Leather		1		1
Furniture and Household Appliances	3			3
Iron, Steel, Engineering and Electrical	15		1	16
Motor and Transport	5	1	1	7
Paper, Pulp, Packages, Containers and Timber	2	1	1	4
Pharmaceutical and Medical				
Printing and Publishing	1		1	2
Stores	6			6
Sugar	2	1		3
Textiles, Carpets, Blankets and Yarns				
Tobacco and Match	1		1	2
Retailers and Wholesalers				
General				
Oil Companies	2	1	1	4
Service (Travel, Dry Cleaners, etc.)	1			1
Other	—	—	—	—
Total	60	7	12	79

GRAPH 16A : EXTERNAL ANALYSIS – OUTLOOK FOR THE INDUSTRY – ENVIRONMENT (Question 10(1)A)

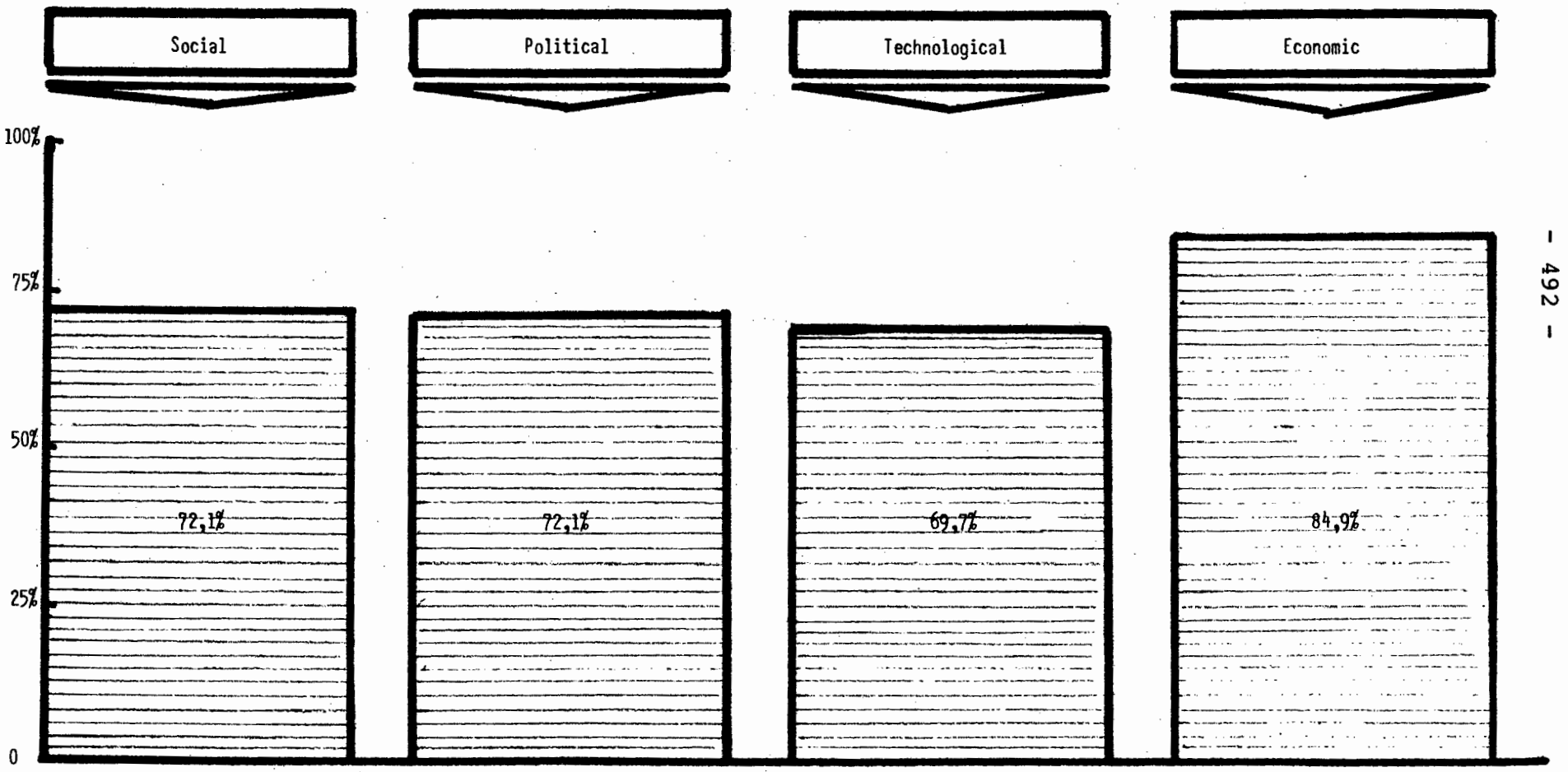


TABLE 16A : EXTERNAL ANALYSIS - OUTLOOK FOR THE INDUSTRY (Question 10(1)A)

Group	Social		Political		Technological		Economic		No Response	Total Planning Companies
	Yes	No	Yes	No	Yes	No	Yes	No		
Banks and Building Societies	4		4		3	1	4		1	5
Mining Companies										
Coal		2		2	1	1	1	1		2
Diamonds	1	1	1	1	2		2			2
Gold	1		1		1		1			1
Metals and Minerals	1		1		1		1			1
Financial Houses										
Mining	3		3		2	1	3		1	4
Industrial										
Industrial Trusts										
Insurance										
Property										
Industrial Organisations										
Beverages and Hotels	2		2		2		2		2	4
Building and Allied Industries	3	2	3	2	4	1	4	1		5
Chemicals	3		3		3		3			3
Clothing and Knitwear	3	1	1	2	3		3			3
Fishing										
Food										
Footwear and Leather		1		1		1		1		1
Furniture and Household Appliances	2	1	1	2		3	2	1		3
Iron, Steel, Engineering and Electrical	11	4	14	1	14	1	15		1	16
Motor and Transport	4	2	5	1	4	2	6		1	7
Paper, Pulp, Packages, Containers and Timber	4		4		4		4			4
Pharmaceutical and Medical										
Printing and Publishing	2		1	1	1	1	2			2
Stores	6		5	1	2	4	6			6
Sugar	3		3		3		3			3
Textiles, Carpets, Blankets and Yarns										
Tobacco and Match	1		1		1		1		1	2
Retailers and Wholesalers										
General										
Oil Companies	3		3		3		3		1	4
Service (Travel, Dry Cleaners, etc.)		1	1		1		1			1
Other										
Total	57	14	57	14	55	16	67	4	8	79

TABLE 16B : EXTERNAL ANALYSIS – POSITION OF THE COMPANY IN THE INDUSTRY (Question 10(1)B)

Group	Market		Cost		Technological		Competition		No Response	Total Planning Companies
	Yes	No	Yes	No	Yes	No	Yes	No		
Banks and Building Societies	3	1	2	2	1	3	3	1	1	5
Mining Companies										
Coal		2	1	1	1	1	1		1	2
Diamonds	1	1		2	1	1		2		2
Gold		1	1		1			1		1
Metals and Minerals	1		1		1		1			1
Financial Houses										
Mining	3		3		3		3		1	4
Industrial										
Industrial Trusts										
Insurance										
Property										
Industrial Organisations										
Beverages and Hotels	1	1	1	1	1	1	1	1	2	4
Building and Allied Industries	4	1	4	1	4	1	4	1		5
Chemicals	3		3		3		3			3
Clothing and Knitwear	3		3		2	1	3			3
Fishing										
Food										
Footwear and Leather		1		1		1		1		1
Furniture and Household Appliances	2	1	1	2		3	2	1		3
Iron, Steel, Engineering and Electrical	15		15		15		15		1	16
Motor and Transport	6	1	6	1	5	2	6	1		7
Paper, Pulp, Packages, Containers and Timber	4		3	1	4		4			4
Pharmaceutical and Medical										
Printing and Publishing	2		2		1	1	2			2
Stores	5	1	4	2	1	5	5	1		6
Sugar	3		3		3		3			3
Textiles, Carpets, Blankets and Yarns										
Tobacco and Match	1		1		1		1		1	2
Retailers and Wholesalers										
General										
Oil Companies	3		3		3		3		1	4
Service (Travel, Dry Cleaners, etc,)	1		1		1		1			1
Other										
Total	61	10	58	13	52	19	61	10	8	79

GRAPH 18 : FORECASTS DEVELOPED (Question 11)

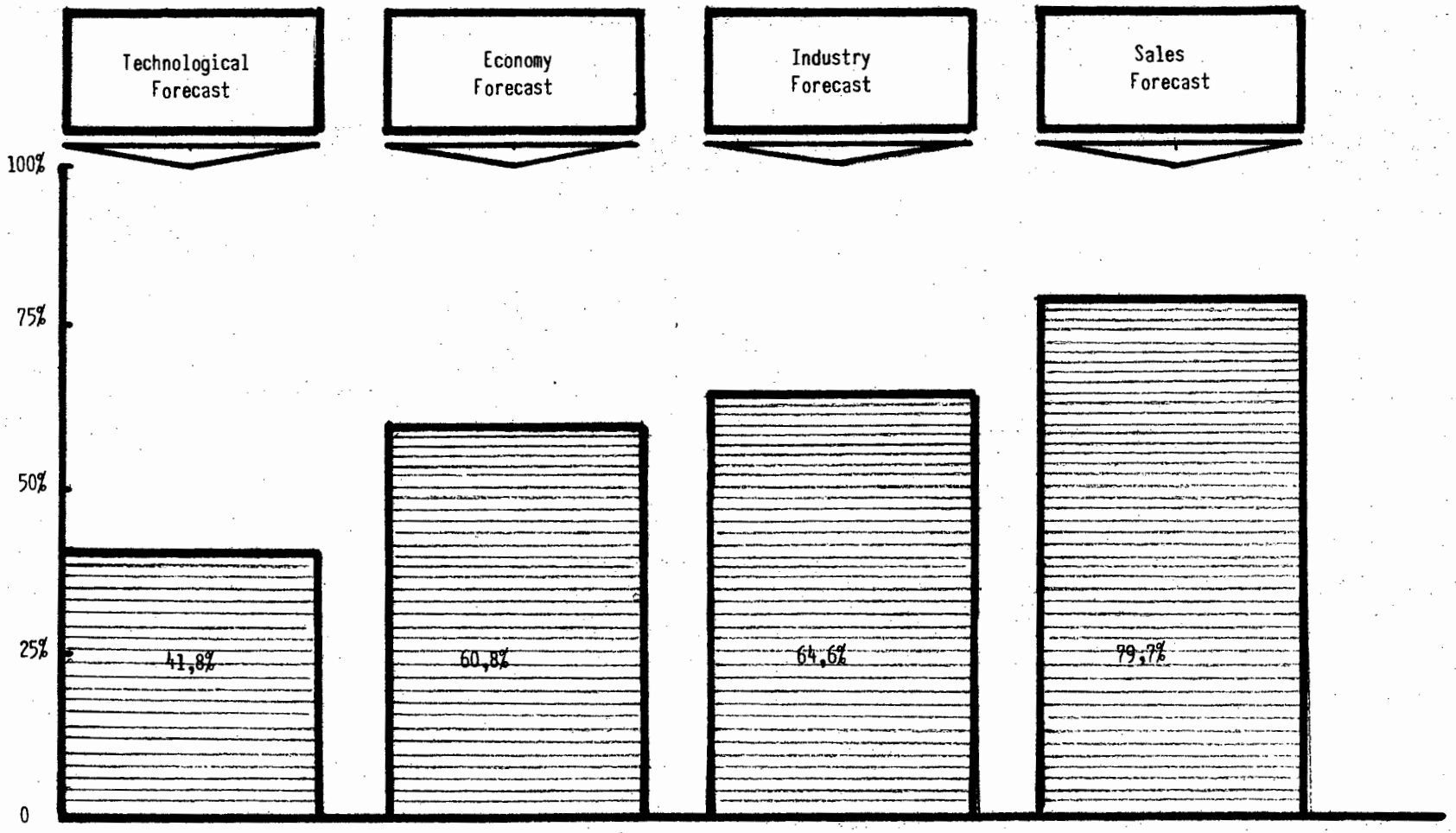
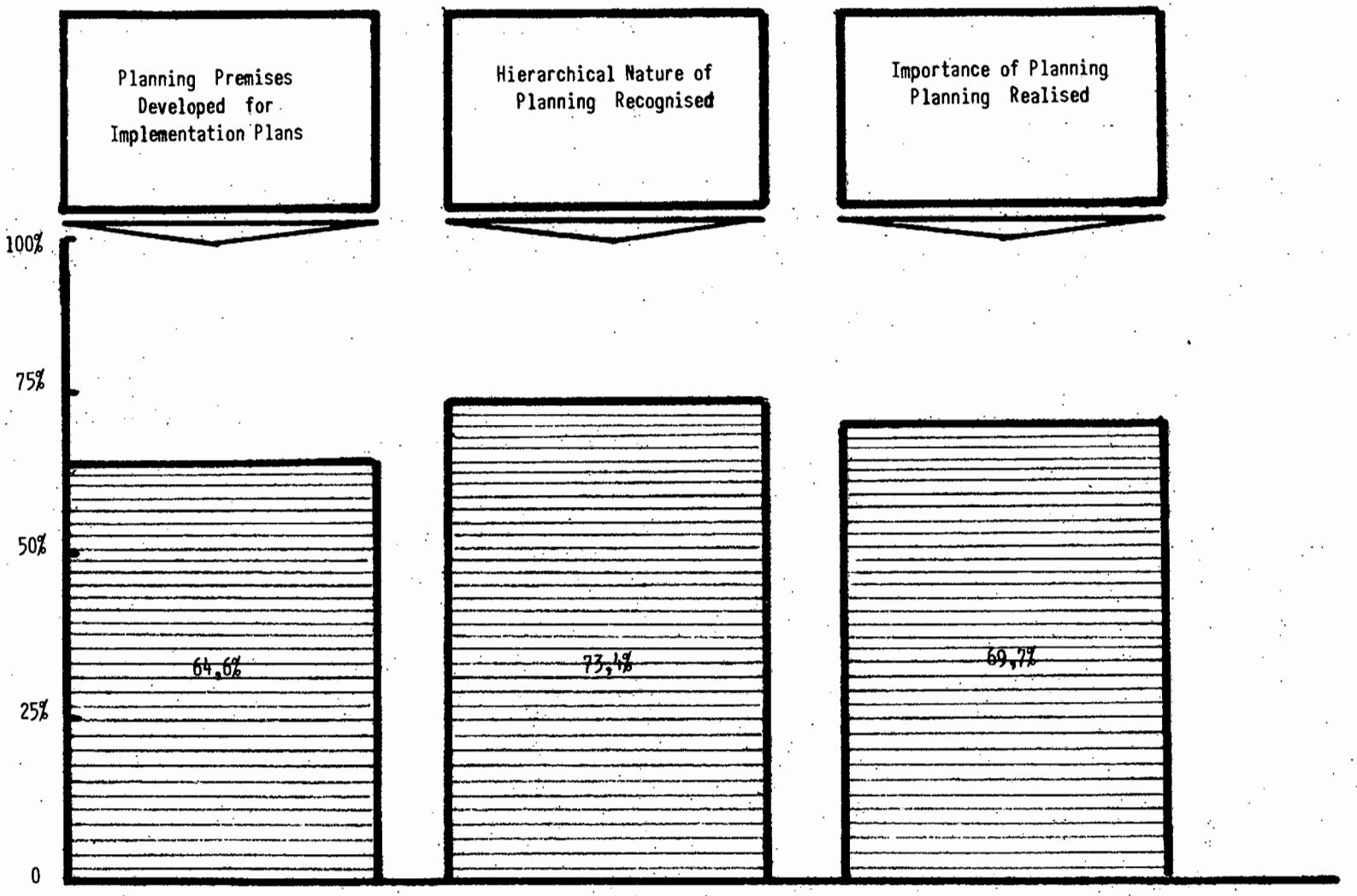


TABLE 18 : FORECASTS DEVELOPED (Question 11)

Group	Technological Forecast		Economy Forecast		Industry Forecast		Sales Forecast		No Response	Total Planning Companies
	Yes	No	Yes	No	Yes	No	Yes	No		
Banks and Building Societies		4	3	1	3	1	4		1	5
Mining Companies										
Coal		2		2	1	1		2		2
Diamonds	2		2		1	1	1	1		2
Gold	1		1			1		1		1
Metals and Minerals	1		1		1		1			1
Financial Houses										
Mining	3		3		3		3		1	4
Industrial										
Industrial Trusts										
Insurance										
Property										
Industrial Organisations										
Beverages and Hotels	1	1	2		2		1	1	2	4
Building and Allied Industries	3	2	2	3	3	2	4	1		5
Chemicals	2	1	2	1	2	1	3			3
Clothing and Knitwear	1	2	1	2	2	1	3			3
Fishing										
Food										
Footwear and Leather		1		1		1		1		1
Furniture and Household Appliances		3	3		2	1	3			3
Iron, Steel, Engineering and Electrical	6	9	8	7	12	3	14	1	1	16
Motor and Transport	3	3	4	2	4	2	6		1	7
Paper, Pulp, Packages, Containers and Timber	2	2	2	2	1	3	4			4
Pharmaceutical and Medical										
Printing and Publishing	1	1	2		2		2			2
Stores	1	5	5	1	4	2	6			6
Sugar	1	2	2	1	3		3			3
Textiles, Carpets, Blankets and Yarns										
Tobacco and Match	1		1		1		1		1	2
Retailers and Wholesalers										
General										
Oil Companies	3		3		3		3		1	4
Service (Travel, Dry Cleaners, etc,)	1		1		1		1			1
Other										
Total	33	38	48	23	51	20	63	8	8	79

GRAPH 19 : DEVELOPMENT OF PREMISES FOR IMPLEMENTATION PLANS, HIERARCHICAL CHARACTER OF PLANNING, IMPORTANCE OF PLANNING PREMISES (Questions 12, 13, 14)



GRAPH 20 : DEVELOPMENT AND EVALUATION OF ALTERNATIVE DIRECTIONS AND CORPORATE OBJECTIVES SELECTED (Questions 15, 16)

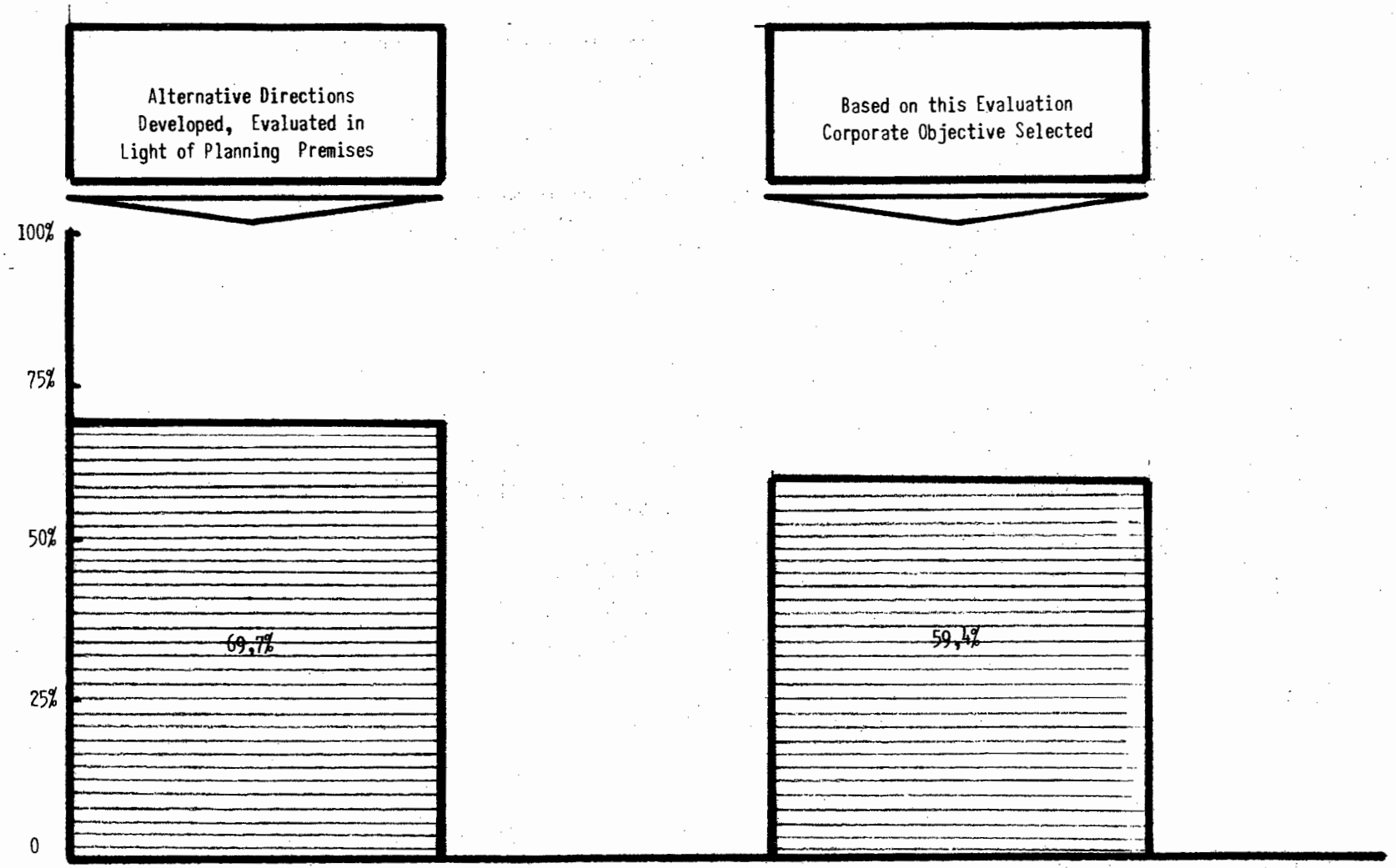


TABLE 20 : DEVELOPMENT AND EVALUATION OF ALTERNATIVE DIRECTIONS (Questions 15, 16)

Group	Alternative Directions Developed, Evaluated in Light Of Planning Premises		Based on this Evaluation Corporate Objectives are Selected		No Response	Total Planning Companies
	Yes	No	Yes	No		
Banks and Building Societies	4		4		1	5
Mining Companies						
Coal	1	1	1	1		2
Diamonds	1	1	1	1		2
Gold	1			1		1
Metals and Minerals	1		1			1
Financial Houses						
Mining						
Industrial	3		2	1	1	4
Industrial Trusts						
Insurance						
Property						
Industrial Organisations						
Beverages and Hotels	1	1	2		2	4
Building and Allied Industries	4	1	4	1		5
Chemicals	3		2	1		3
Clothing and Knitwear	1	2	1	2		3
Fishing						
Food						
Footwear and Leather	1			1		1
Furniture and Household Appliances	2	1	2	1		3
Iron, Steel, Engineering and Electrical	12	3	9	6	1	16
Motor and Transport	4	2	4	2	1	7
Paper, Pulp, Packages, Containers and Timber	2	2	1	3		4
Pharmaceutical and Medical						
Printing and Publishing	1	1		2		2
Stores	5	1	5	1		6
Sugar	3		3			3
Textiles, Carpets, Blankets and Yarns						
Tobacco and Match	1		1		1	2
Retailers and Wholesalers						
General						
Oil Companies	3		3		1	4
Service (Travel, Dry Cleaners, etc,)	1		1			1
Other						
Total	55	16	47	24	8	79

GRAPH 21 : COMPANY PHILOSOPHY AND AIMS STATED (Question 17)

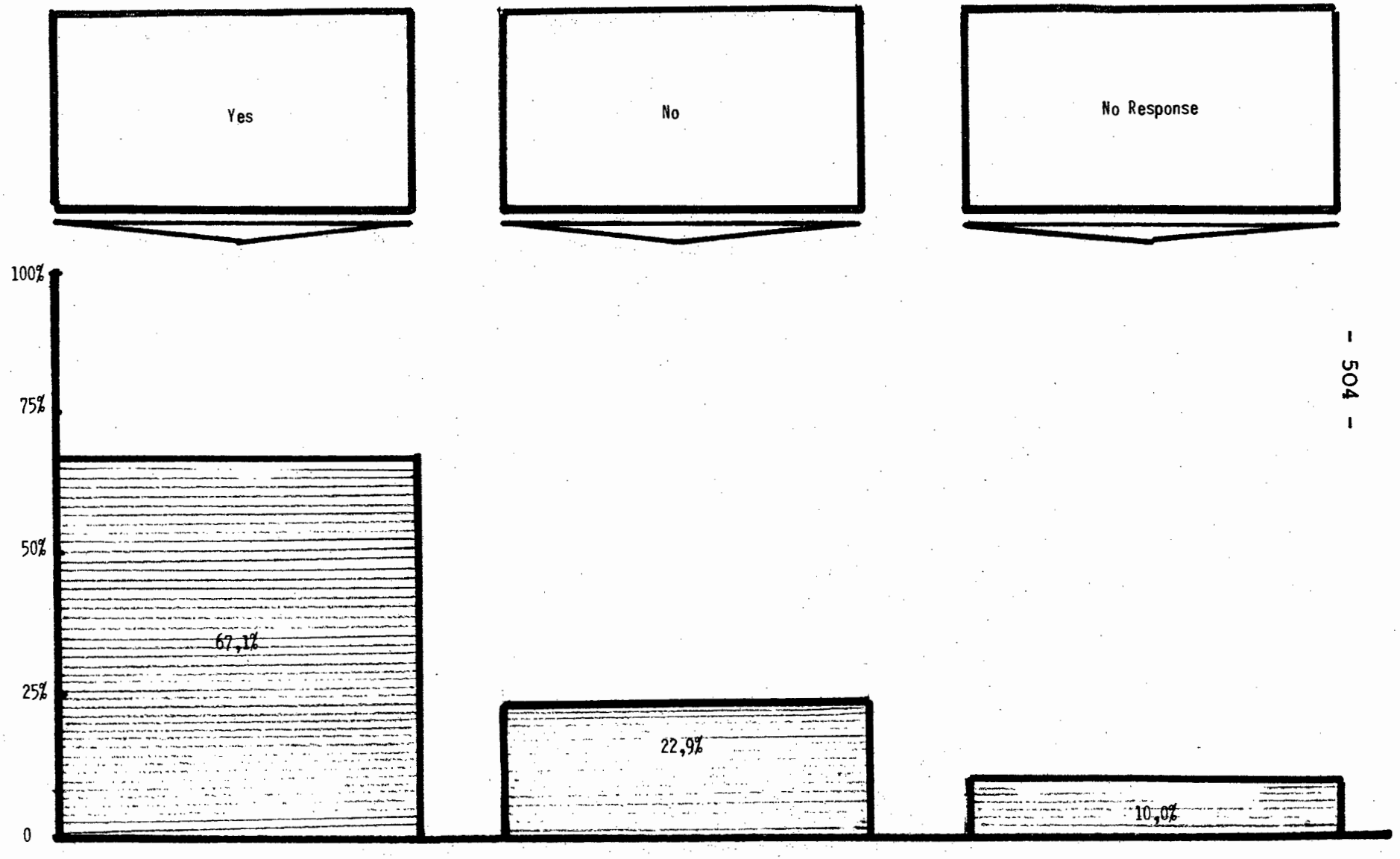


TABLE 21 : COMPANY PHILOSOPHY AND AIMS STATED (Question 17)

Group	Principles of Action, General Philosophy, & Overall Strategy Stated		No Response	Total Planning Companies
	Yes	No		
Banks and Building Societies	3	1	1	4
Mining Companies				
Coal		2		2
Diamonds	2			2
Gold	1			1
Metals and Minerals	1			1
Financial Houses				
Mining				
Industrial	2	1	1	4
Industrial Trusts				
Insurance				
Property				
Industrial Organisations				
Beverages and Hotels	1	1	2	4
Building and Allied Industries	4	1		5
Chemicals	3			3
Clothing and Knitwear	1	2		3
Fishing				
Food				
Footwear and Leather		1		1
Furniture and Household Appliances	2	1		3
Iron, Steel, Engineering and Electrical	12	3	1	16
Motor and Transport	4	2	1	7
Paper, Pulp, Packages, Containers and Timber	3	1		4
Pharmaceutical and Medical				
Printing and Publishing	2			2
Stores	5	1		6
Sugar	3			3
Textiles, Carpets, Blankets and Yarns				
Tobacco and Match		1	1	2
Retailers and Wholesalers				
General				
Oil Companies	3		1	4
Service (Travel, Dry Cleaners, etc,)	1			1
Other				
Total	53	18	8	79

GRAPH 22 : CHOICE OF COMPANY OBJECTIVES (Questions 18(1)-(10))

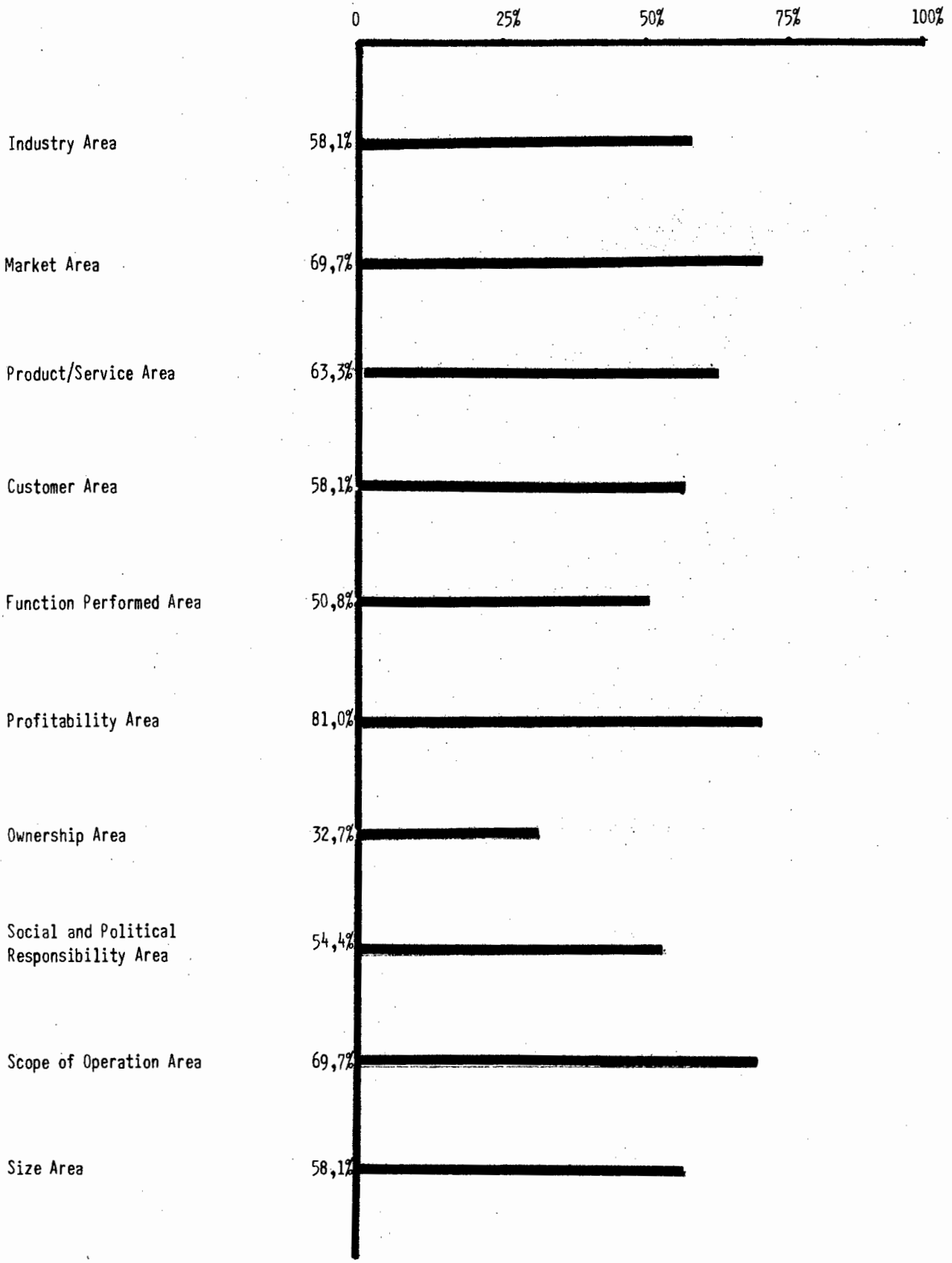


TABLE 22 : CHOICE OF COMPANY OBJECTIVES (Question 18(1)-(10))

Group	Industry Area		Market Area		Product/ Service Area		Customer Area	
	Yes	No	Yes	No	Yes	No	Yes	No
Banks and Building Societies	3	1	4		4		3	1
Mining Companies								
Coal	1	1		2		2		2
Diamonds	1	1	1	1		2		2
Gold		1	1			1		1
Metals and Minerals	1			1		1	1	
Financial Houses								
Mining								
Industrial	2	1	1	2	1	2	1	2
Industrial Trusts								
Insurance								
Property								
Industrial Organisations								
Beverages and Hotels	1	1	1	1	1	1	1	1
Building and Allied Industries	3	2	3	2	3	2	4	1
Chemicals	3		3		3		3	
Clothing and Knitwear	2	1	3		2	1	2	1
Fishing								
Food								
Footwear and Leather		1	1			1	1	
Furniture and Household Appliances	1	2	2	1	3		2	1
Iron, Steel, Engineering and Electrical	12	3	12	3	14	1	10	5
Motor and Transport	4	2	5	1	4	2	3	3
Paper, Pulp, Packages, Containers and Timber	3	1	3	1	3	1	2	2
Pharmaceutical and Medical								
Printing and Publishing	1	1	2		1	1	2	
Stores	1	5	5	1	4	2	6	
Sugar	3		3		2	1	1	2
Textiles, Carpets, Blankets and Yarns								
Tobacco and Match		1	1		1		1	
Retailers and Wholesalers								
General								
Oil Companies	3		3		3		2	1
Service (Travel, Dry Cleaners, etc.)	1		1		1		1	
Other								
Total	46	25	55	16	50	21	46	25

GRAPH 23 : ALTERNATIVE OBJECTIVES WITHIN SELECTED AREAS FORMULATED (Question 19)

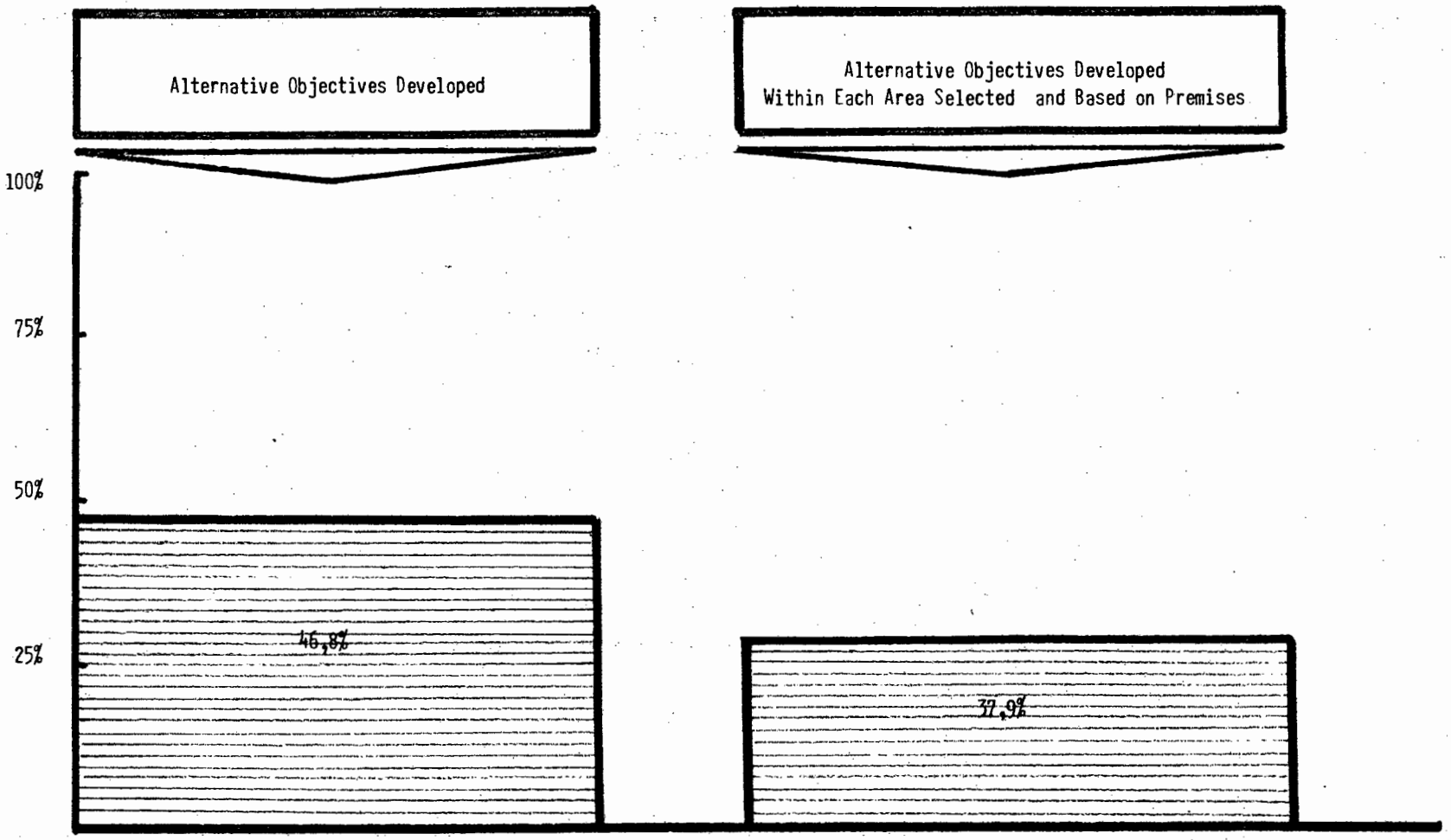


TABLE 23 : ALTERNATIVE OBJECTIVES WITHIN SELECTED AREAS FORMULATED (Question 19)

Group	Alternative Objectives Developed		Study of External & Internal Premises	Within Each Area & Based on the	No Response	Total Planning Companies
	Yes	No	Yes	No		
Banks and Building Societies	3	1	1	3	1	5
Mining Companies						
Coal	1	1		2		2
Diamonds	1	1	1	1		2
Gold	1		1			1
Metals and Minerals		1	1			1
Financial Houses						
Mining						
Industrial	1	2	3		1	4
Industrial Trusts						
Insurance						
Property						
Industrial Organisations						
Beverages and Hotels	1	1	1	1	2	4
Building and Allied Industries	2	3	1	4		5
Chemicals	3		2	1		3
Clothing and Knitwear	1	2		3		3
Fishing						
Food						
Footwear and Leather	1			1		1
Furniture and Household Appliances	1	2	2	1		3
Iron, Steel, Engineering and Electrical	7	8	6	9	1	16
Motor and Transport	3	3	2	4	1	7
Paper, Pulp, Packages, Containers and Timber	1	3	1	3		4
Pharmaceutical and Medical						
Printing and Publishing		2	1	1		2
Stores	3	3	3	3		6
Sugar	3		2	1		3
Textiles, Carpets, Blankets and Yarns						
Tobacco and Match		1		1	1	2
Retailers and Wholesalers						
General						
Oil Companies	3		2	1	1	4
Service (Travel, Dry Cleaners, etc,)	1			1		1
Other						
Total	37	34	30	41	8	79

GRAPH 24 : ESTABLISHMENT OF FUNCTIONAL GOALS (Question 20(1)-(7))

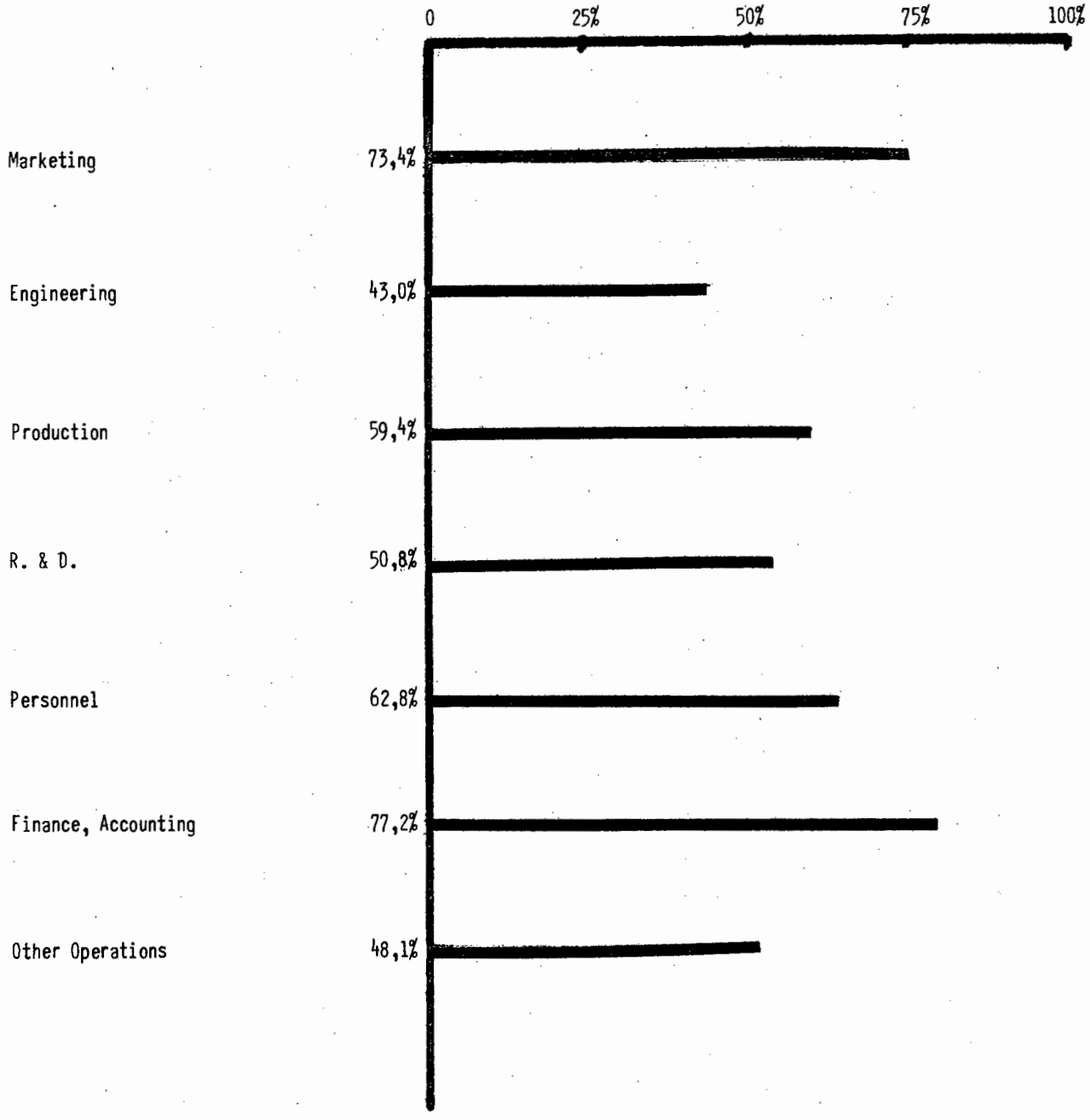


TABLE 24 : ESTABLISHMENT OF FUNCTIONAL GOALS (Question 20(1)-(7))

Group	Marketing		Engineering		Production		Re
	Yes	No	Yes	No	Yes	No	
Banks and Building Societies	4			4		4	
Mining Companies							
Coal		2	1	1	1	1	
Diamonds		2	2		2		
Gold		1	1		1		
Metals and Minerals	1		1		1		
Financial Houses							
Mining							
Industrial	2	1	1	2	1	2	
Industrial Trusts							
Insurance							
Property							
Industrial Organisations							
Beverages and Hotels	1	1		2	1	1	
Building and Allied Industries	4	1	2	3	4	1	
Chemicals	3		1	2	3		
Clothing and Knitwear	2	1		3	2	1	
Fishing							
Food							
Footwear and Leather	1			1	1		
Furniture and Household Appliances	3			3	2	1	
Iron, Steel, Engineering and Electrical	14	1	12	3	13	2	
Motor and Transport	5	1	3	3	3	3	
Paper, Pulp, Packages, Containers and Timber	4		3	1	4		
Pharmaceutical and Medical							
Printing and Publishing	2		1	1	1	1	
Stores	5	1		6	1	5	
Sugar	3		2	1	3		
Textiles, Carpets, Blankets and Yarns							
Tobacco and Match	1		1		1		
Retailers and Wholesalers							
General							
Oil Companies	2	1	2	1	2	1	
Service (Travel, Dry Cleaners, etc.)	1		1			1	
Other							
Total	58	13	34	37	47	24	

GRAPH 25 : DEVELOPING POLICIES (Question 23)

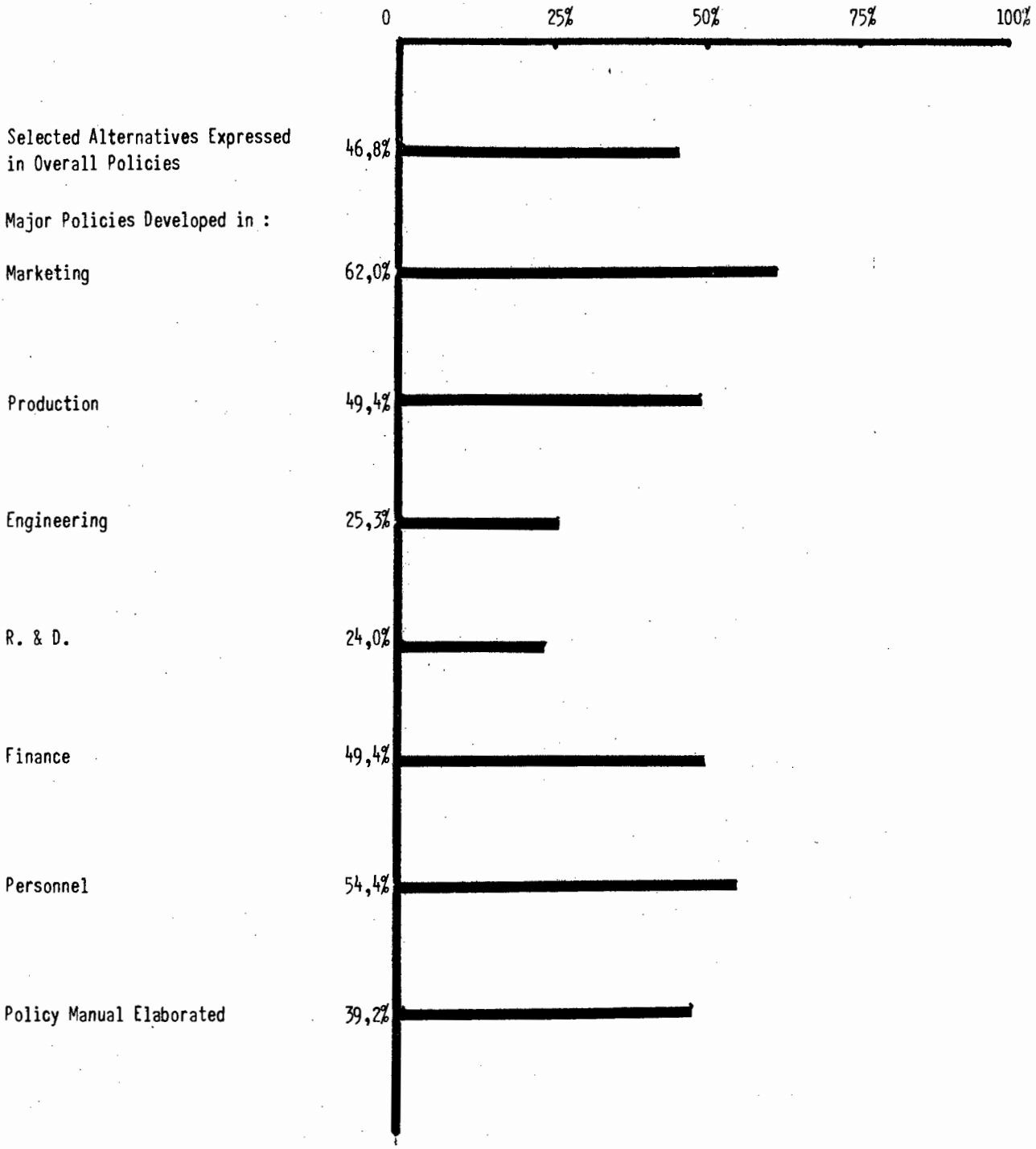


TABLE 25 : DEVELOPING POLICIES (Questions 21, 23, 24)

Group	Selected Alternatives Expressed In Overall Policies (Q.21)		Marketing		Produc
	Yes	No	Yes	No	Yes
Banks and Building Societies	2	2	1	3	
Mining Companies					
Coal		2		2	1
Diamonds	1	1		2	1
Gold	1			1	1
Metals and Minerals	1		1		1
Financial Houses					
Mining					
Industrial	2	1	1	2	
Industrial Trusts					
Insurance					
Property					
Industrial Organisations					
Beverages and Hotels	1	1	1	1	1
Building and Allied Industries	2	3	4	1	3
Chemicals		3	1	2	
Clothing and Knitwear	1	2	1	2	1
Fishing					
Food					
Footwear and Leather	1		1		
Furniture and Household Appliances	1	2	3		2
Iron, Steel, Engineering and Electrical	10	5	15		14
Motor and Transport	3	3	4	2	3
Paper, Pulp, Packages, Containers and Timber	1	3	3	1	3
Pharmaceutical and Medical					
Printing and Publishing		2	1	1	
Stores	3	3	5	1	2
Sugar	3		3		3
Textiles, Carpets, Blankets and Yarns					
Tobacco and Match		1	1		1
Retailers and Wholesalers					
General					
Oil Companies	3		3		2
Service (Travel, Dry Cleaners, etc.)	1			1	
Other					
Total	37	34	49	22	39

GRAPH 26 : IMPLEMENTATION PLANNING – DETAILED PLANS DEVELOPED (Question 25, 26)

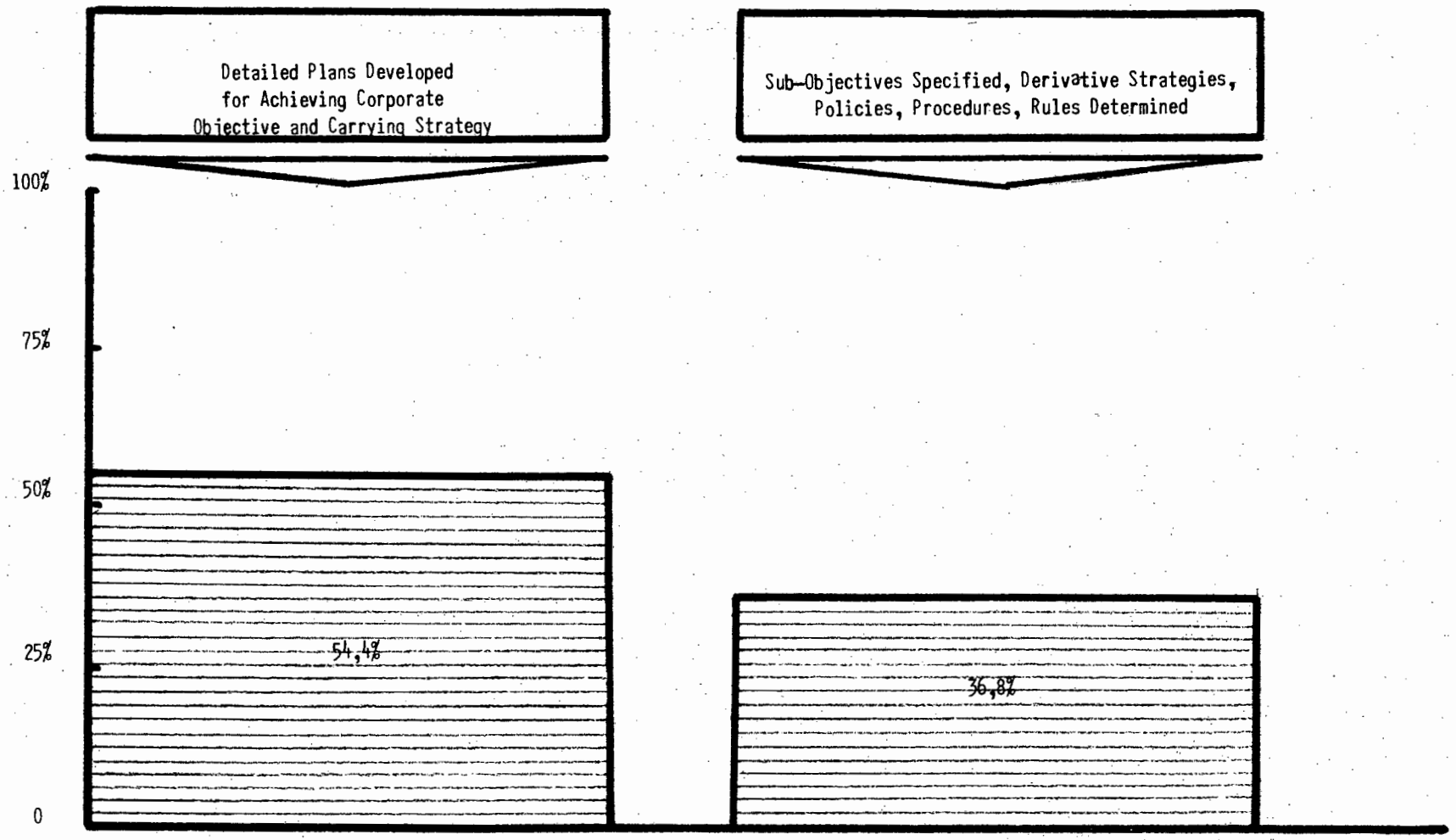


TABLE 26 : IMPLEMENTATION PLANNING – DETAILED PLANS DEVELOPED (Questions 25, 26)

Group	Objective & Strategy Developed	Detailed Plans for Achieving Corporate	Policies, Procedures, Rules Determined	Subobjectives Specified, Derivative Strategies,	No Response	Total Planning Companies
	Yes	No	Yes	No		
Banks and Building Societies	4		2	2	1	5
Mining Companies						
Coal		2		2		2
Diamonds	1	1	2			2
Gold	1		1			1
Metals and Minerals	1		1			1
Financial Houses						
Mining						
Industrial	2	1	2	1	1	4
Industrial Trusts						
Insurance						
Property						
Industrial Organisations						
Beverages and Hotels	1	1		2	2	4
Building and Allied Industries	4	1	2	3		5
Chemicals	1	2	1	2		3
Clothing and Knitwear		3		3		3
Fishing						
Food						
Footwear and Leather		1		1		1
Furniture and Household Appliances	1	2	1	2		3
Iron, Steel, Engineering and Electrical	8	7	6	9	1	16
Motor and Transport	3	3	3	3	1	7
Paper, Pulp, Packages, Containers and Timber	3	1	1	3		4
Pharmaceutical and Medical						
Printing and Publishing	2			2		2
Stores	4	2	2	4		6
Sugar	3		1	2		3
Textiles, Carpets, Blankets and Yarns						
Tobacco and Match		1		1		1
Retailers and Wholesalers						
General						
Oil Companies	3		3		1	4
Service (Travel, Dry Cleaners, etc.)	1		1			1
Other						
Total	43	28	29	42	8	79

GRAPH 26A : IMPLEMENTATION PLANNING - STEP-BY-STEP PLAN OF ACTION DEVELOPED - MARKETING (Question 27A)

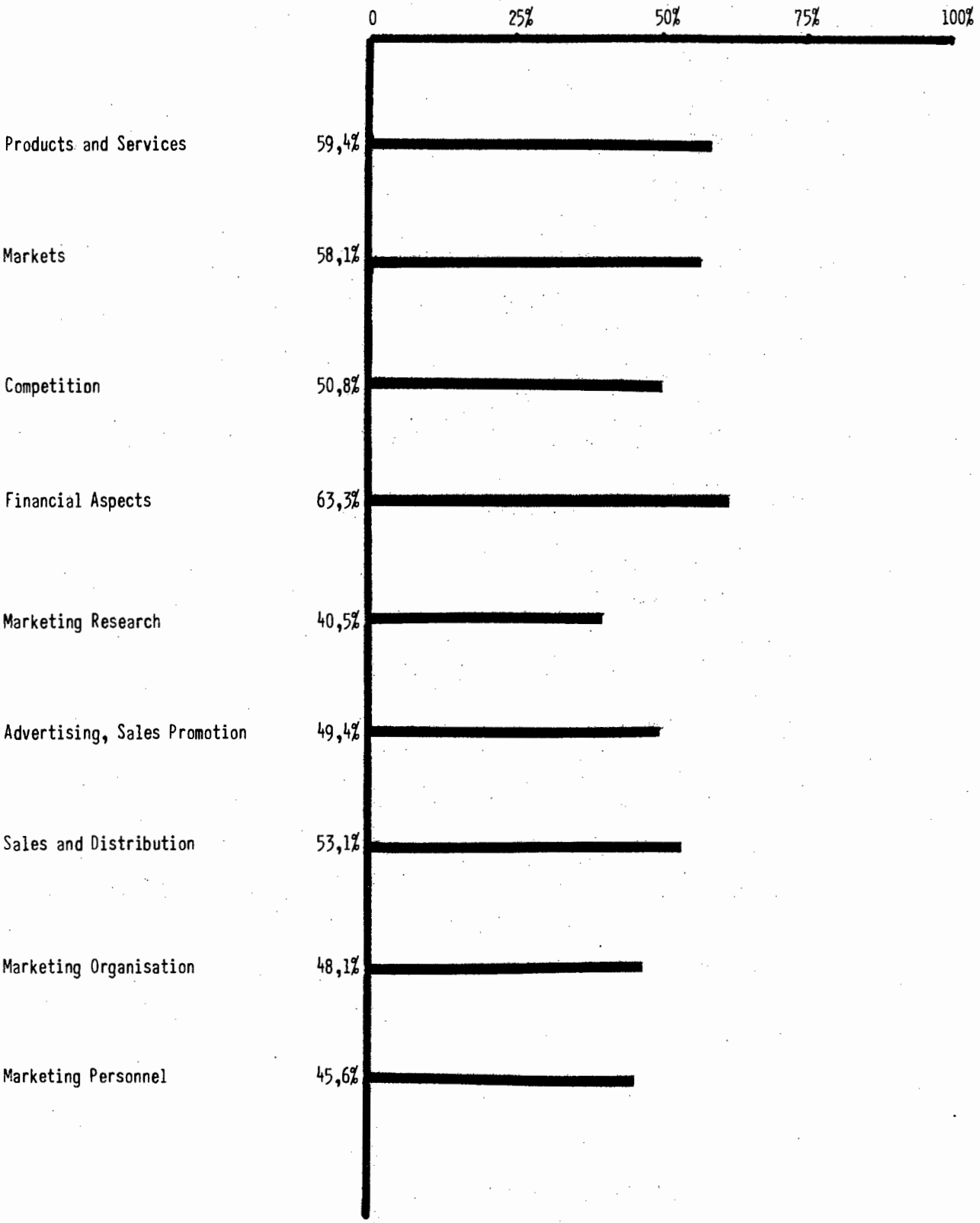


TABLE 26A : MARKETING STEP-BY-STEP PLAN OF ACTION DEVELOPED (Question 27A)

Group	Products & Services		Markets		Competition		Financial Aspects	
	Yes	No	Yes	No	Yes	No	Yes	No
Banks and Building Societies	3	1	3	1	3	1	3	1
Mining Companies								
Coal		2		2		2		2
Diamonds		2		2		2		2
Gold		1		1		1	1	
Metals and Minerals		1	1		1		1	
Financial Houses								
Mining								
Industrial	1	2	1	2	1	2	1	2
Industrial Trusts								
Insurance								
Property								
Industrial Organisations								
Beverages and Hotels	1	1	1	1	1	1	1	1
Building and Allied Industries	4	1	4	1	4	1	4	1
Chemicals	3		2	1	1	2	2	1
Clothing and Knitwear	2	1	2	1	1	2	2	1
Fishing								
Food								
Footwear and Leather		1		1		1		1
Furniture and Household Appliances	3		3		3		2	1
Iron, Steel, Engineering and Electrical	11	4	11	4	10	5	11	4
Motor and Transport	4	2	4	2	4	2	4	2
Paper, Pulp, Packages, Containers and Timber	3	1	3	1	3	1	4	
Pharmaceutical and Medical								
Printing and Publishing	2		2		1	1	2	
Stores	3	3	2	4	1	5	5	1
Sugar	3		3		2	1	3	
Textiles, Carpets, Blankets and Yarns								
Tobacco and Match	1		1		1		1	
Retailers and Wholesalers								
General								
Oil Companies	3		3		3		3	
Service (Travel, Dry Cleaners, etc.)		1		1		1		1
Other								
Total	47	24	46	25	40	31	50	21

GRAPH 26B : STEP-BY-STEP PLAN OF ACTION DEVELOPED - MANUFACTURING (Question 27B)

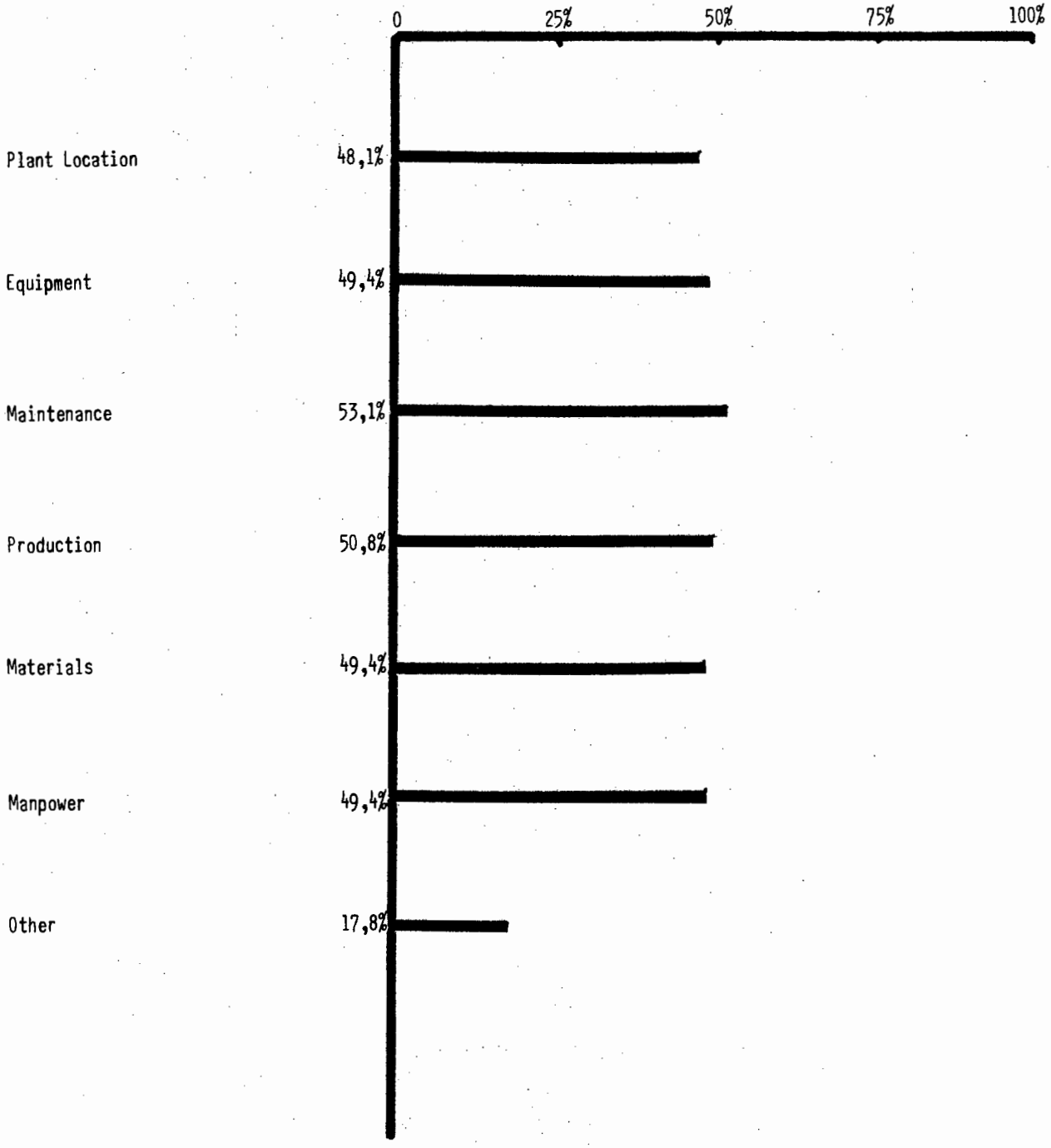


TABLE 26B : MANU

Group
Banks and Buildi
Mining Companies
Coal
Diamonds
Gold
Metals and Min
Financial Houses
Mining
Industrial
Industrial Tru
Insurance
Property
Industrial Organ
Beverages and
Building and A
Chemicals
Clothing and K
Fishing
Food
Footwear and L
Furniture and
Iron, Steel, E
Motor and Tran
Paper, Pulp, P
Pharmaceutical
Printing and P
Stores
Sugar
Textiles, Carp
Tobacco and Ma
Retailers and
General
Oil Companies
Service (Trave
Other
Total

GRAPH 26C : STEP-BY-STEP PLAN OF ACTION DEVELOPED – FINANCE (Question 27C)

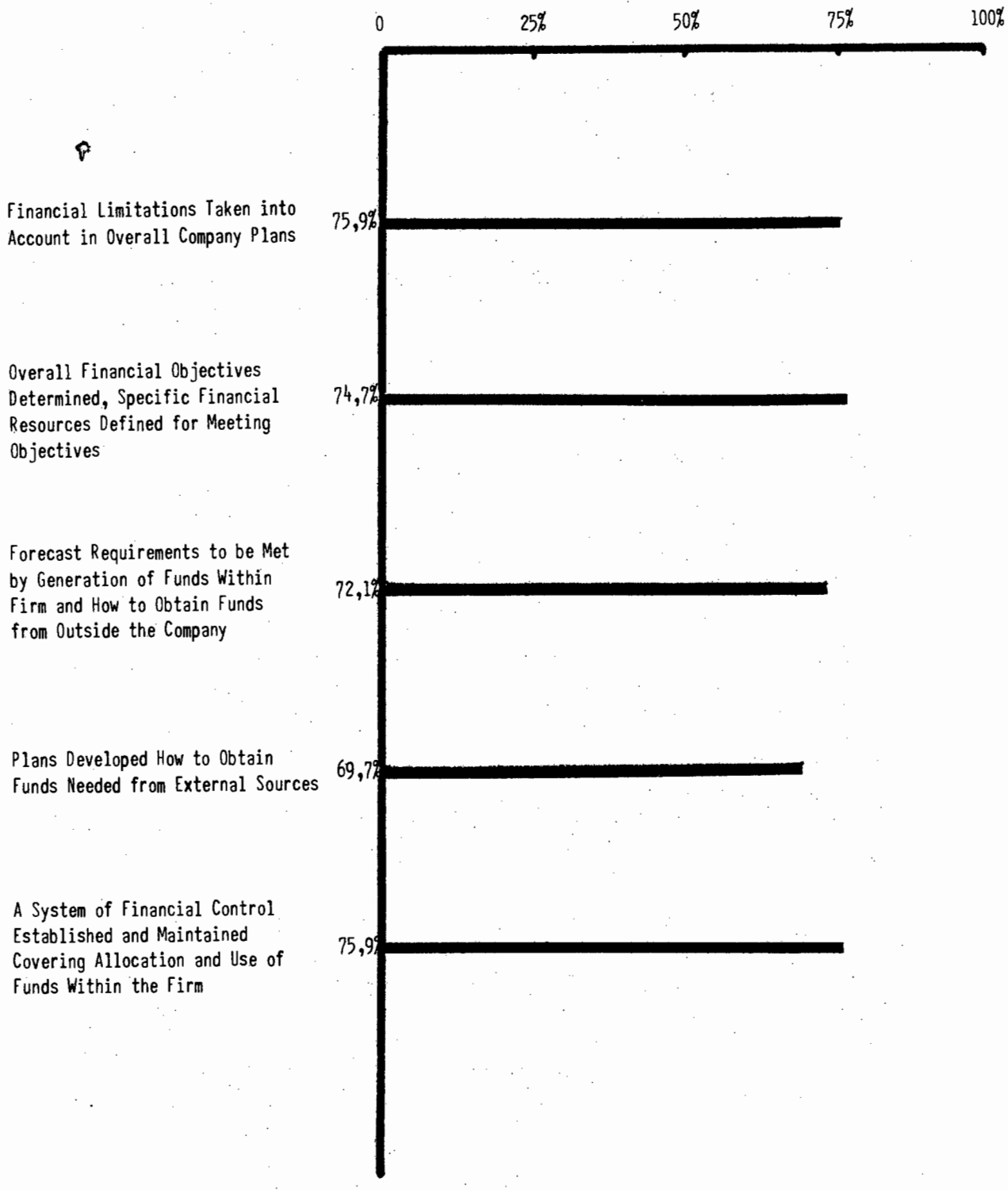


TABLE 26C : FINANCE STEP-BY-STEP PLAN OF ACTION DEVELOPED (Question 27C)

Group	Financial Limitations Taken into Account in Overall Company's Plans		Overall Financial Objectives Determined, Specific Financial Resources Defined For Meeting Objective		Forecast Requirements to be Met By Generation of Funds Within Firm or From Outside Company Establishment		Plans Developed How To Obtain Funds Needed From External Sources		A System of Financial Control Established & Maintained Covering Allocation & Use of Funds Within the Firm		No Response	Total Planning Companies
	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No		
Banks and Building Societies	4		4		3	1	3	1	4		1	5
Mining Companies												
Coal		2		2		2		2				2
Diamonds	1	1	1	1		2		2	2			2
Gold	1		1		1		1		1			1
Metals and Minerals	1		1		1		1		1			1
Financial Houses												
Mining												
Industrial	2	1	2	1	2	1	2	1	2	1	1	4
Industrial Trusts												
Insurance												
Property												
Industrial Organisations												
Beverages and Hotels	2		2		2		2		2		2	4
Building and Allied Industries	4	1	4	1	4	1	4	1	4	1		5
Chemicals	3		3		3		3		3			3
Clothing and Knitwear	2	1	2	1	2	1	2	1	3			3
Fishing												
Food												
Footwear and Leather	1		1		1			1	1			1
Furniture and Household Appliances	3		3		3		3		3			3
Iron, Steel, Engineering and Electrical	13	2	13	2	13	2	12	3	12	3	1	16
Motor and Transport	5	1	5	1	5	1	5	1	5	1	1	7
Paper, Pulp, Packages, Containers and Timber	4		4		4		4		3	1		4
Pharmaceutical and Medical												
Printing and Publishing	2		2		2		2		2			2
Stores	5	1	5	1	5	1	5	1	5	1		6
Sugar	3		3		3		3		3			3
Textiles, Carpets, Blankets and Yarns												
Tobacco and Match	1			1		1		1	1		1	2
Retailers and Wholesalers												
General												
Oil Companies	2	1	2	1	2	1	2	1	2	1	1	4
Service (Travel, Dry Cleaners, etc.)	1		1		1		1		1			1
Other												
Total	60	11	59	12	57	14	55	16	60	11	8	79

GRAPH 26D : IMPLEMENTATION PLANNING – COORDINATION AND INTEGRATION OF INDIVIDUAL PLANS (Questions 28, 29)

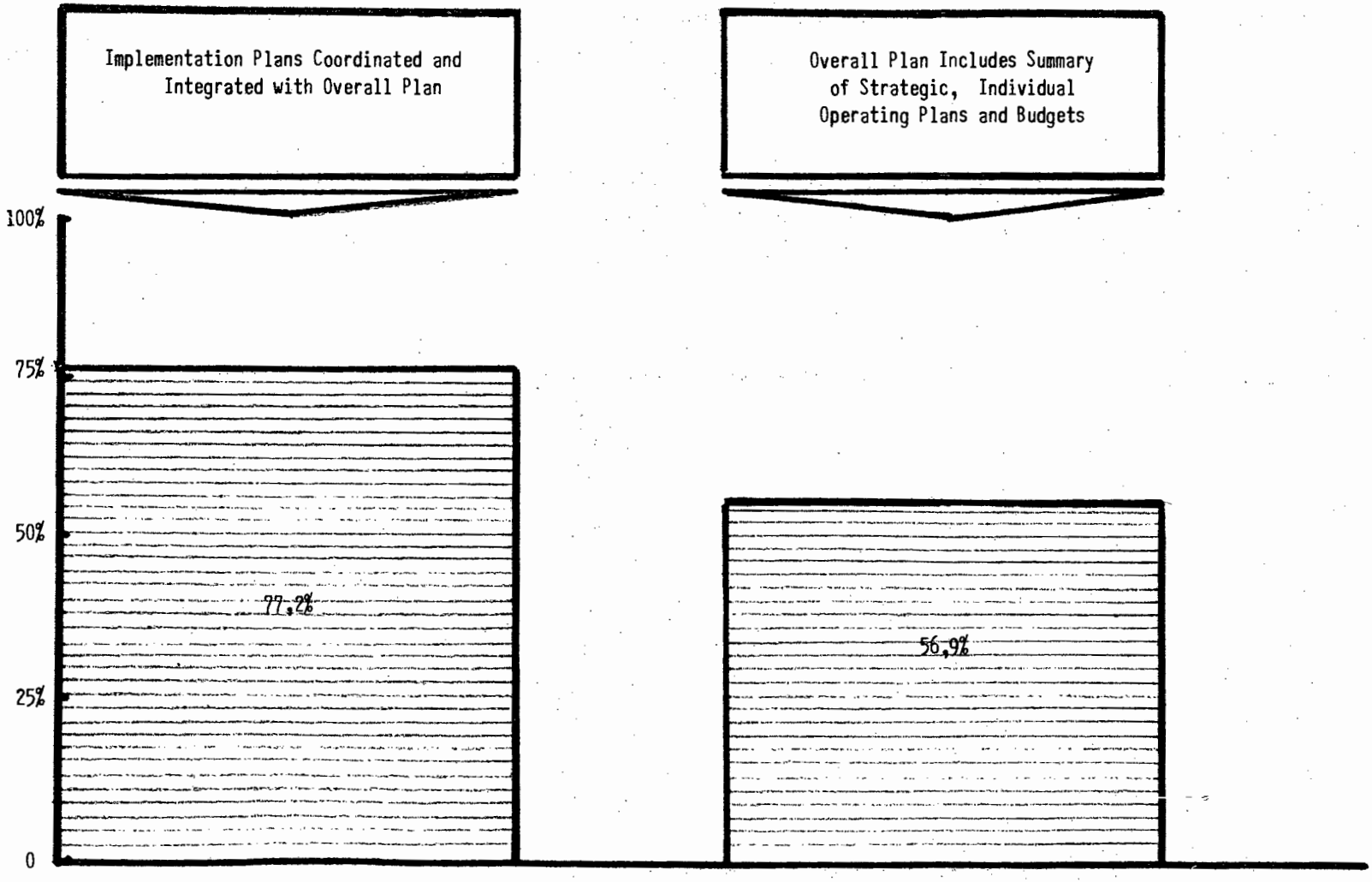


TABLE 26D : IMPLEMENTATION PLANNING – COORDINATION & INTEGRATION OF INDIVIDUAL PLANS (Questions 28,29)

Group	Implementation Plans Coordinated & Integrated with Overall Plan		Overall Planning Includes Summary of Strategic, Individual Operating & Staff Plans & Budgets		No Response	Total Planning Companies
	Yes	No	Yes	No		
Banks and Building Societies	4		3	1	1	5
Mining Companies						
Coal		2		2		2
Diamonds	2		2			2
Gold	1		1			1
Metals and Minerals	1		1			1
Financial Houses						
Mining						
Industrial	2	1	2	1	1	4
Industrial Trusts						
Insurance						
Property						
Industrial Organisations						
Beverages and Hotels	2		1	1	2	4
Building and Allied Industries	4	1	3	2		5
Chemicals	3		3			3
Clothing and Knitwear	1	2		3		3
Fishing						
Food						
Footwear and Leather	1			1		1
Furniture and Household Appliances	2	1	1	2		3
Iron, Steel, Engineering and Electrical	14	1	11	4	1	16
Motor and Transport	5	1	3	2	1	7
Paper, Pulp, Packages, Containers and Timber	3	1	2	2		4
Pharmaceutical and Medical						
Printing and Publishing	2		2			2
Stores	6		4	2		6
Sugar	3		2	1		3
Textiles, Carpets, Blankets and Yarns						
Tobacco and Match	1			1		1
Retailers and Wholesalers						
General						
Oil Companies	3		3		1	4
Service (Travel, Dry Cleaners, etc.)	1		1			1
Other						
Total	61	10	45	26	8	79

GRAPH 27 : OUTLINE OF A FIVE-YEAR COMPREHENSIVE PLAN (Question 30)

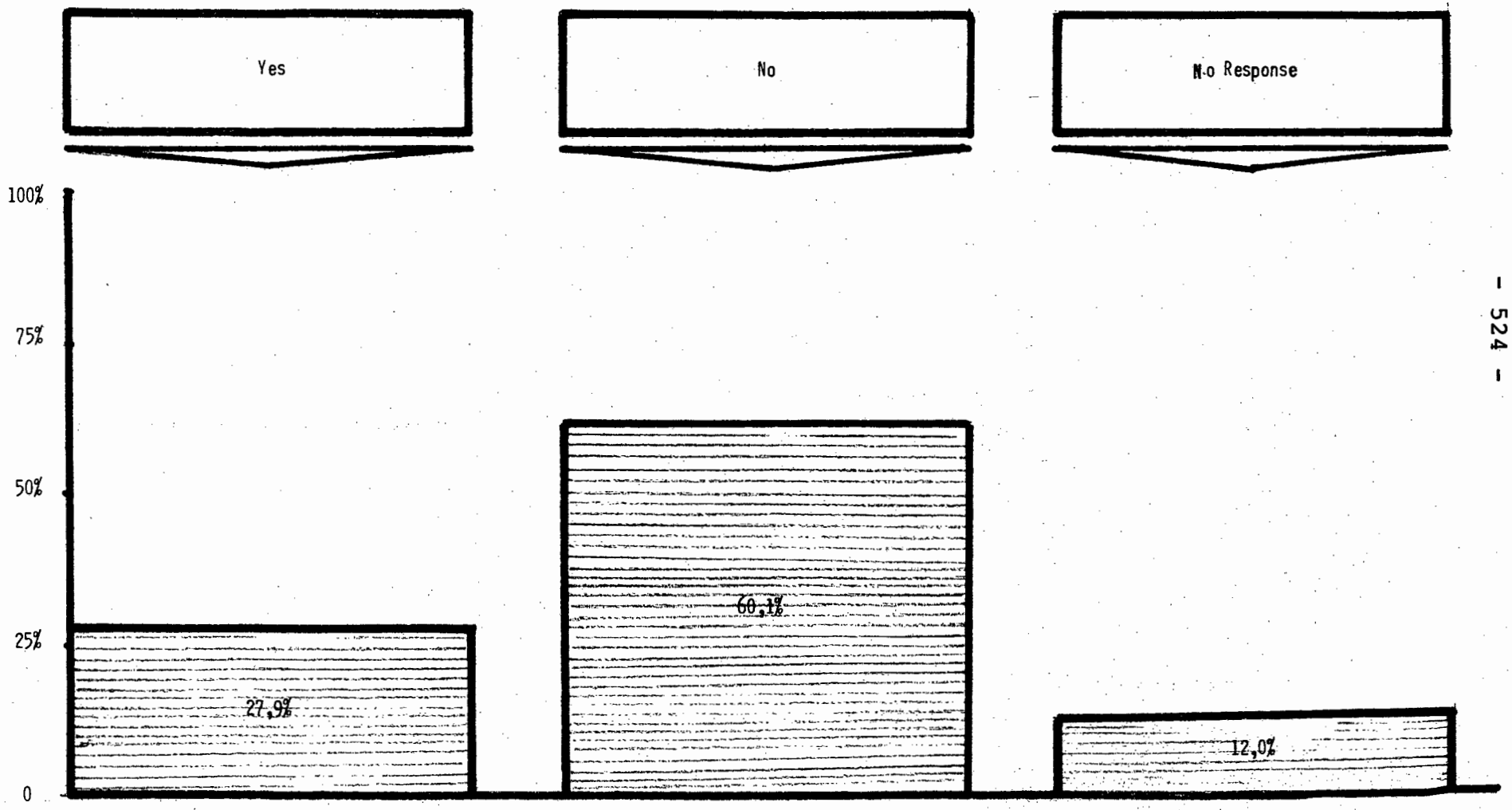


TABLE 27 : OUTLINE OF A FIVE-YEAR COMPREHENSIVE PLAN (Question 30)

	A Five-Year Comprehensive Plan Outlined		No Response	Total Planning Companies
	Yes	No		
Banks and Building Societies		4	1	5
Mining Companies				
Coal		2		2
Diamonds	1	1		2
Gold	1			1
Metals and Minerals	1			1
Financial Houses				
Mining				
Industrial	1	2	1	4
Industrial Trusts				
Insurance				
Property				
Industrial Organisations				
Beverages and Hotels	1	1	2	4
Building and Allied Industries	2	3		5
Chemicals	1	2		3
Clothing and Knitwear		3		3
Fishing				
Food				
Footwear and Leather		1		1
Furniture and Household Appliances	2	1		3
Iron, Steel, Engineering and Electrical	4	11	1	16
Motor and Transport	1	5	1	7
Paper, Pulp, Packages, Containers and Timber	1	3		4
Pharmaceutical and Medical				
Printing and Publishing		2		2
Stores	2	4		6
Sugar	3			3
Textiles, Carpets, Blankets and Yarns				
Tobacco and Match		1	1	2
Retailers and Wholesalers				
General				
Oil Companies	1	2	1	4
Service (Travel, Dry Cleaners, etc.)		1		1
Other				
Total	22	49	8	79

GRAPH 28 : CONTROL IN PLANNING (Question 31)

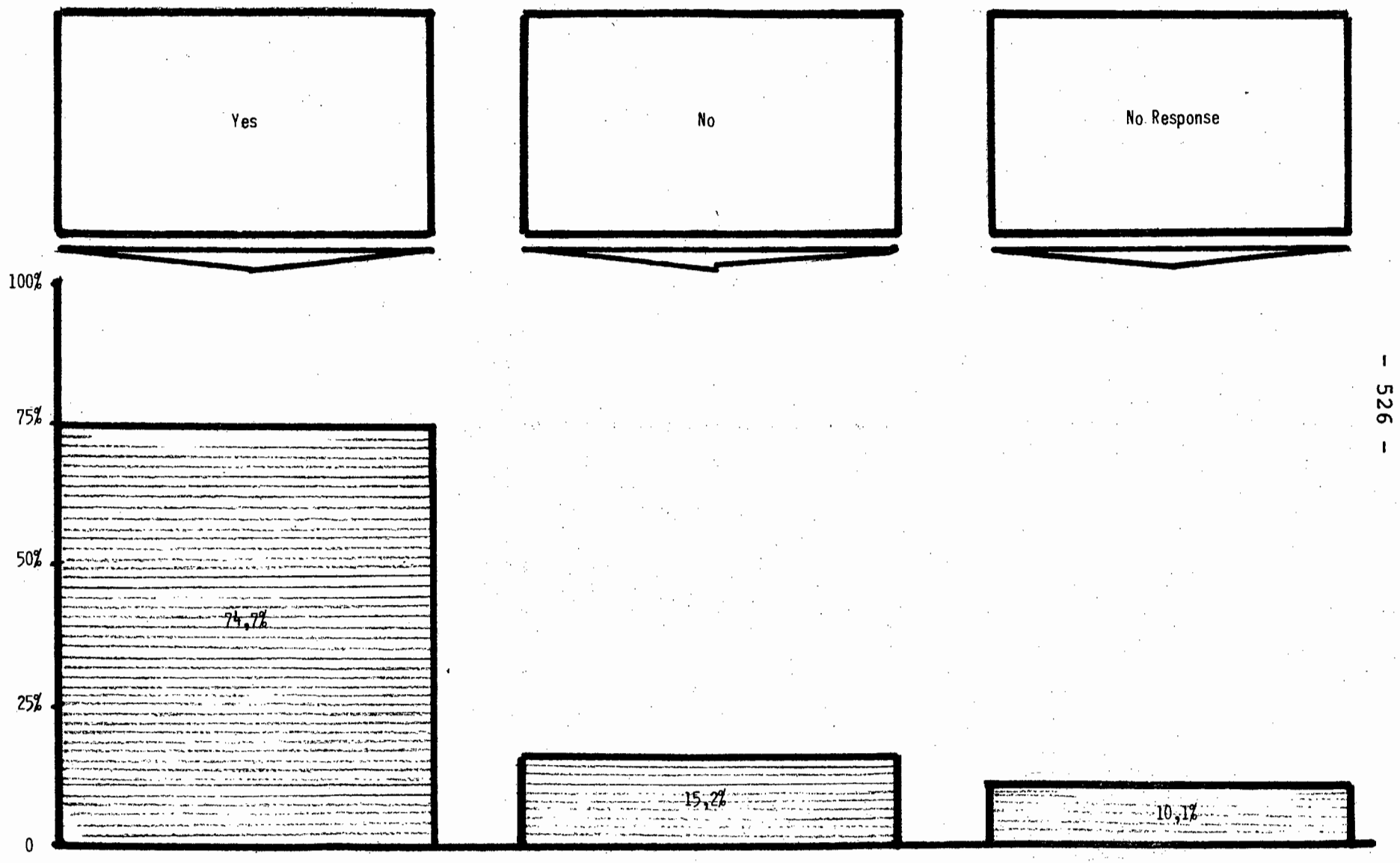


TABLE 28 : CONTROL IN PLANNING (Question 31)

Group	Controls Measuring Performance Against Planned Objectives & Goals Developed & Installed		No Response	Total Planning Companies
	Yes	No		
Banks and Building Societies	3	1	1	5
Mining Companies				
Coal	2			2
Diamonds	2			2
Gold	1			1
Metals and Minerals	1			1
Financial Houses				
Mining				
Industrial	1	2	1	4
Industrial Trusts				
Insurance				
Property				
Industrial Organisations				
Beverages and Hotels	2		2	4
Building and Allied Industries	4	1		5
Chemicals	3			3
Clothing and Knitwear	3			3
Fishing				
Food				
Footwear and Leather		1		1
Furniture and Household Appliances	3			3
Iron, Steel, Engineering and Electrical	12	3	1	16
Motor and Transport	5	1	1	7
Paper, Pulp, Packages, Containers and Timber	2	2		4
Pharmaceutical and Medical				
Printing and Publishing	1	1		2
Stores	6			6
Sugar	3			3
Textiles, Carpets, Blankets and Yarns				
Tobacco and Match	1			1
Retailers and Wholesalers				
General				
Oil Companies	1		1	4
Service (Travel, Dry Cleaners, etc.)	1			1
Other				
Total	59	12	8	79

GRAPH 29 : BUDGETARY CONTROL (Questions 33, 34)

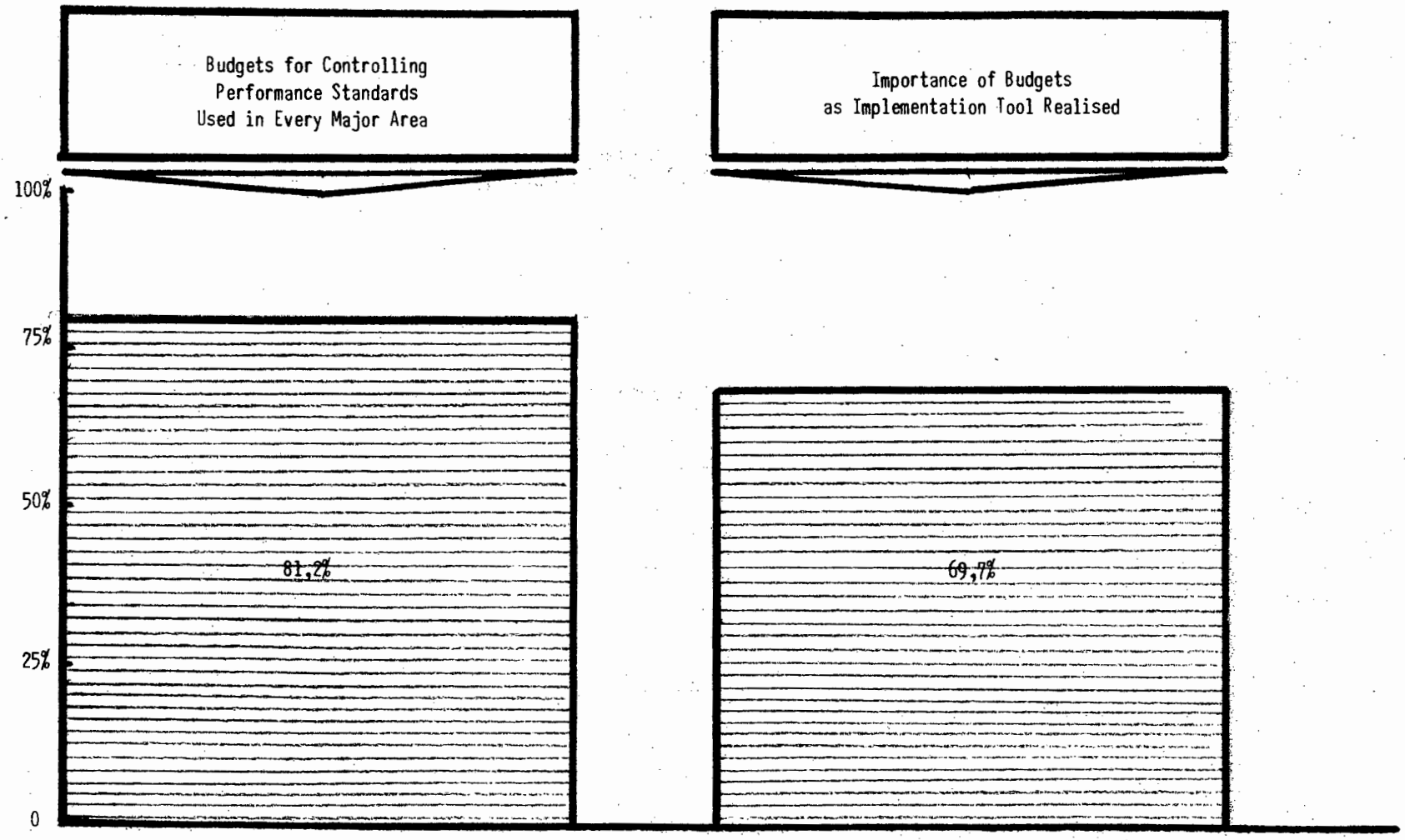


TABLE 29 : BUDGETARY CONTROL (Questions 33, 34)

Group	Standards Used In Every Major Area	Budgets for Controlling Performance	Time-Period in Years	Importance of Budgets as Implementation Tool Realised		No Response	Total Planning Companies
	Yes	No		Yes	No		
Banks and Building Societies	4		1/4,1,3	3	1	1	5
Mining Companies							
Coal	2		1	1	1		2
Diamonds	2		½,1,15	2			2
Gold	1		1	1			1
Metals and Minerals	1		½	1			1
Financial Houses							
Mining							
Industrial	3		1	3		1	4
Industrial Trusts							
Insurance							
Property							
Industrial Organisations							
Beverages and Hotels	2		1	1		2	4
Building and Allied Industries	4	1	1,2,5	4	1		5
Chemicals	3		1	2	1		3
Clothing and Knitwear	3		¼,½,1	2	1		3
Fishing							
Food							
Footwear and Leather		1			1		1
Furniture and Household Appliances	3		½,1	3			3
Iron, Steel, Engineering and Electrical	11	4	1,1½,2,4,8	12	3	1	16
Motor and Transport	5	1	¼,1	5	1	1	7
Paper, Pulp, Packages, Containers and Timber	4		1	3	1		4
Pharmaceutical and Medical							
Printing and Publishing	2		1		2		2
Stores	6		1,2,5	5	1		6
Sugar	3		1	2	1		3
Textiles, Carpets, Blankets and Yarns			1	1			1
Tobacco and Match	1		1	1	1		2
Retailers and Wholesalers							
General							
Oil Companies	3		1	3		1	4
Service (Travel, Dry Cleaners, etc.)	1		1	1			1
Other							
Total	64	7		55	16	8	79

GRAPH 30 : HUMAN RELATIONS TECHNIQUES USED IN BUDGET PLANNING PROCESS (Question 35)

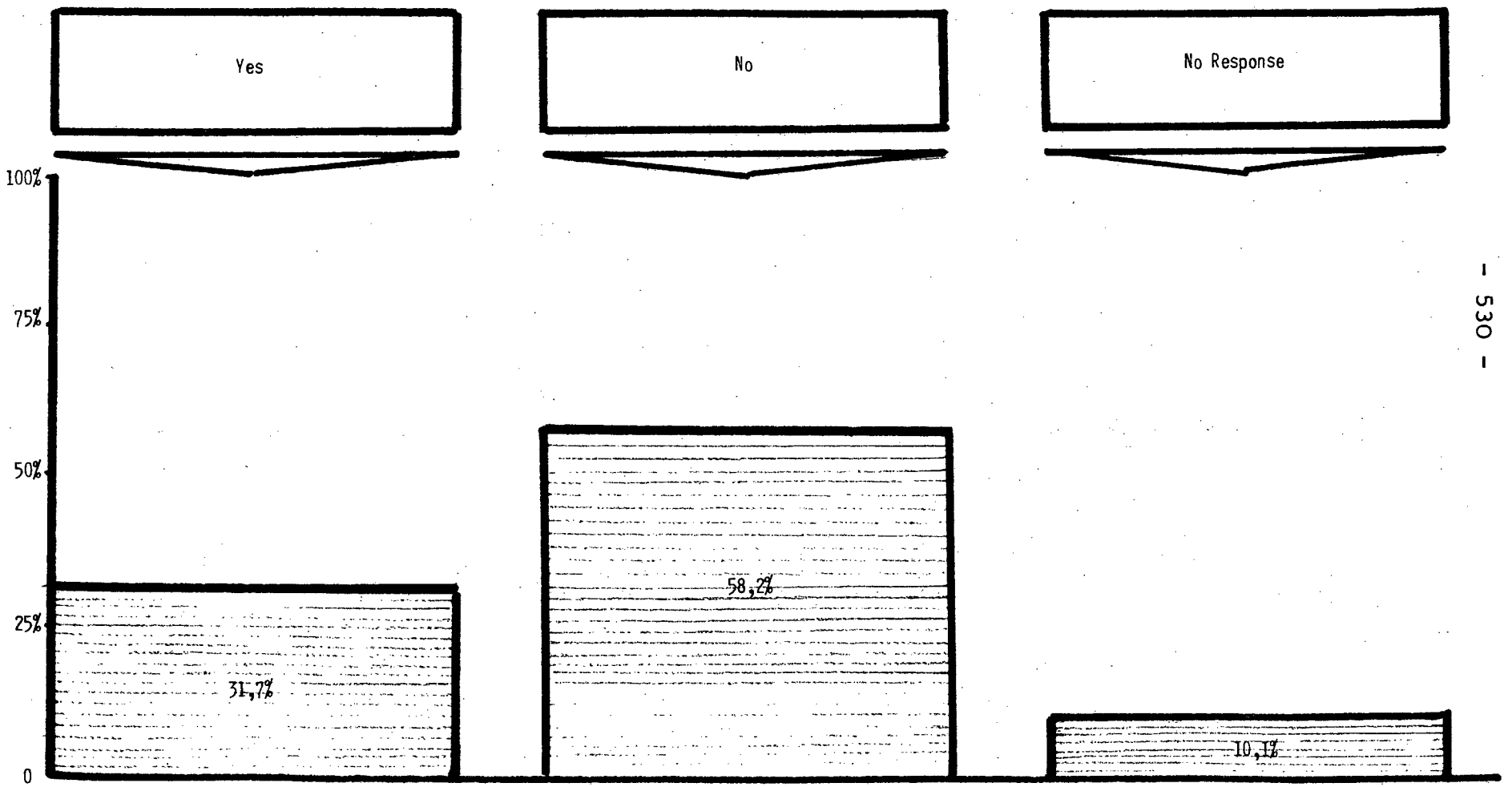
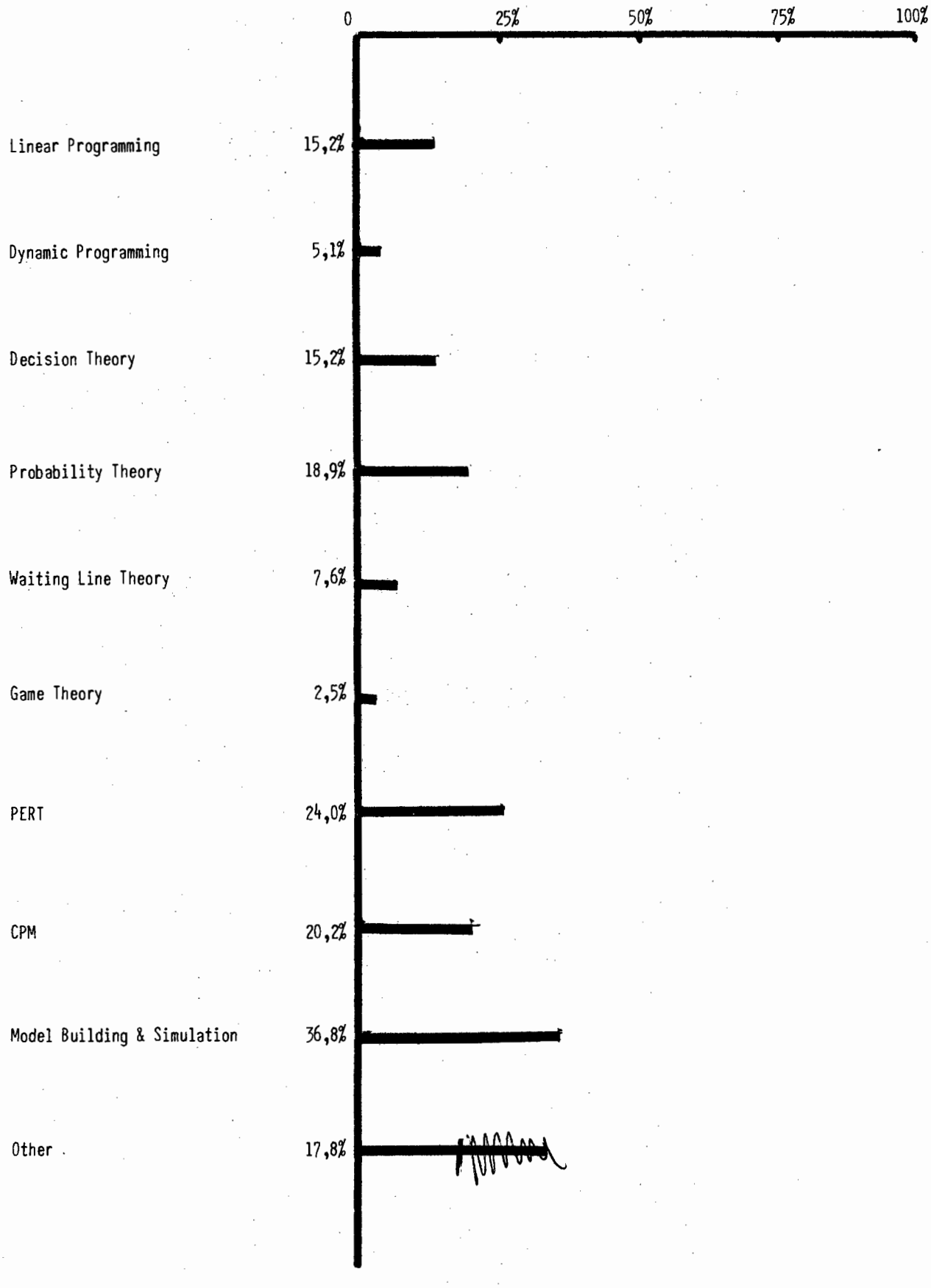


TABLE 30 : HUMAN RELATIONS TECHNIQUES USED IN BUDGET PLANNING PROCESS (Question 35)

Group	Human Relations Techniques Used in Budget Planning Process		No Response	Total Planning Companies
	Yes	No		
Banks and Building Societies	3	1	1	5
Mining Companies				
Coal		2		2
Diamonds	2			2
Gold		1		1
Metals and Minerals	1			1
Financial Houses				
Mining				
Industrial	2	1	1	4
Industrial Trusts				
Insurance				
Property				
Industrial Organisations				
Beverages and Hotels	1	1	2	4
Building and Allied Industries	3	2		5
Chemicals	1	2		3
Clothing and Knitwear		3		3
Fishing				
Food				
Footwear and Leather		1		1
Furniture and Household Appliances	1	2		3
Iron, Steel, Engineering and Electrical	1	14	1	16
Motor and Transport	2	4	1	7
Paper, Pulp, Packages, Containers and Timber	2	2		4
Pharmaceutical and Medical				
Printing and Publishing	2			2
Stores	3	3		6
Sugar		3		3
Textiles, Carpets, Blankets and Yarns				
Tobacco and Match		1		1
Retailers and Wholesalers				
General				
Oil Companies	1	2	1	4
Service (Travel, Dry Cleaners, etc.)		1		1
Other				
Total	25	46	8	79

GRAPH 31 : QUANTITATIVE AND GRAPHIC TECHNIQUES USED IN PLANNING (Question 37(1)-(10))



GRAPH 32 : TYPES OF INFORMATION SYSTEMS (Question 38(1)–(3))

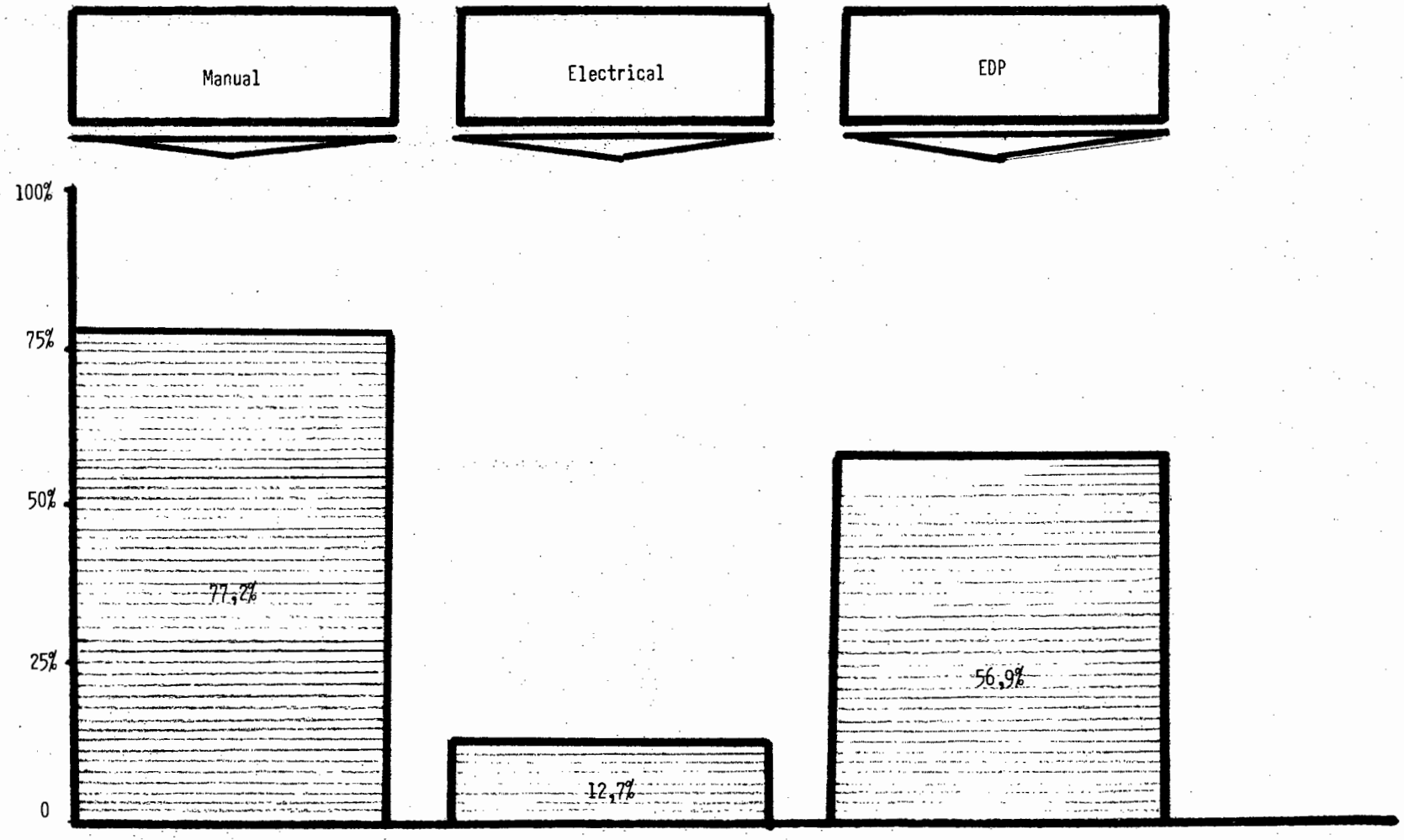


TABLE 32 : TYPES OF INFORMATION SYSTEMS (Question 38(1)–(3))

Group	Systems: Manual		Systems: Electrical		Systems: EDP		No Response	Total Planning Companies
	Yes	No	Yes	No	Yes	No		
Banks and Building Societies	3	1	1	3	3	1	1	5
Mining Companies								
Coal	2			2		2		2
Diamonds	2			2	2			2
Gold		1	1			1		1
Metals and Minerals	1			1		1		1
Financial Houses								
Mining								
Industrial	3		1	2	2	1	1	4
Industrial Trusts								
Insurance								
Property								
Industrial Organisations								
Beverages and Hotels	2			2		2	2	4
Building and Allied Industries	4	1	1	4	3	2		5
Chemicals	3		1	2	2	1		3
Clothing and Knitwear	3			3	3			3
Fishing								
Food								
Footwear and Leather	1			1		1		1
Furniture and Household Appliances	2	1	1	2	2	1	1	3
Iron, Steel, Engineering and Electrical	14	1	2	13	9	6		16
Motor and Transport	5	1		6	3	3	1	7
Paper, Pulp, Packages, Containers and Timber	2	2	1	3	2	2		4
Pharmaceutical and Medical								
Printing and Publishing	2			2	2			2
Stores	5	1	1	5	6			6
Sugar	3			3	2	1		3
Textiles, Carpets, Blankets and Yarns								
Tobacco and Match	1			1		1	1	2
Retailers and Wholesalers								
General								
Oil Companies	3			3	3		1	4
Service (Travel, Dry Cleaners, etc.)		1		1	1			1
Other								
Total	61	10	10	61	45	26	8	79

GRAPH 33 : USE OF COMPUTER MODELS FOR CORPORATE PLANNING (Question 39)

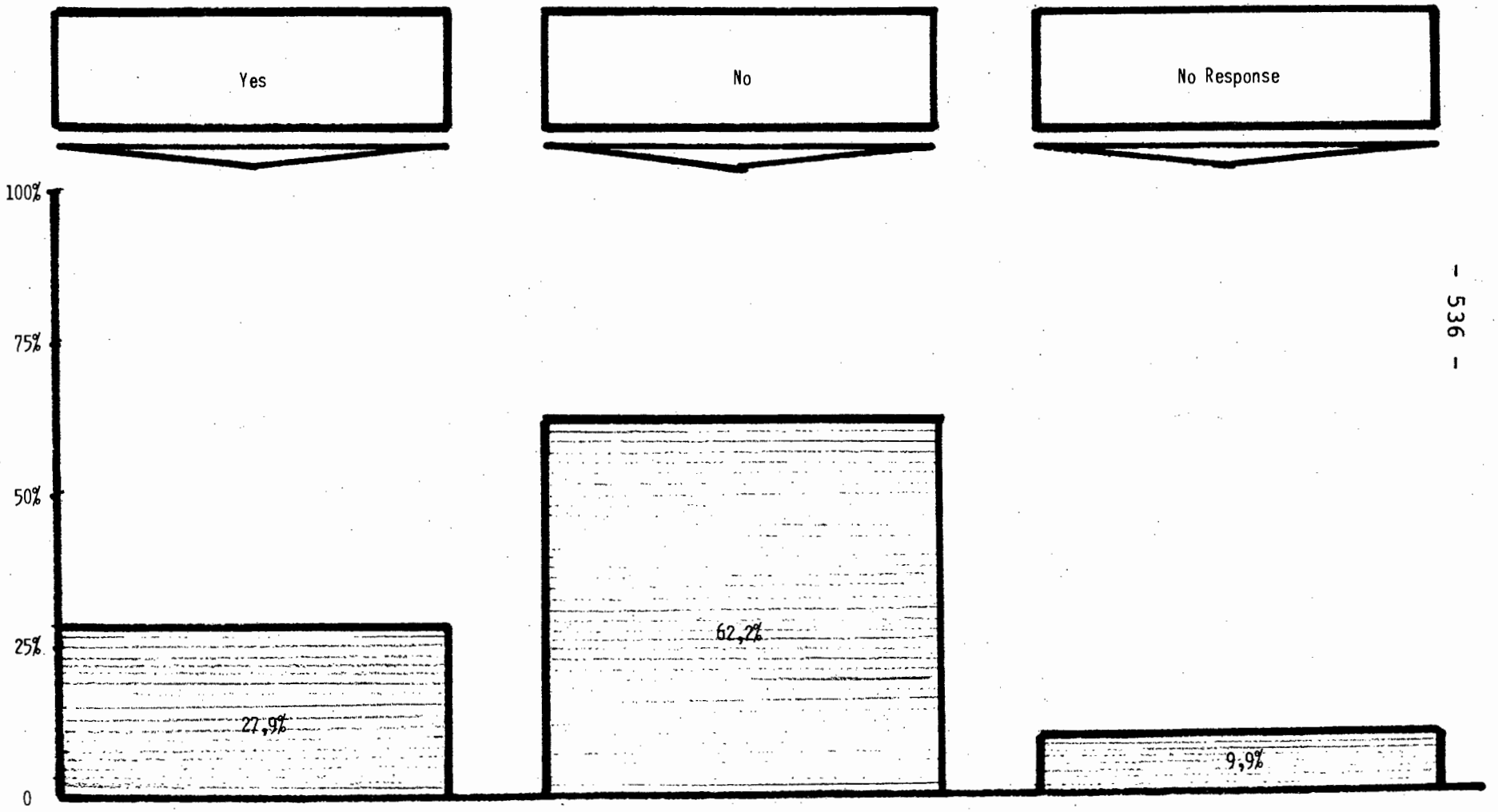


TABLE 33 : USE OF COMPUTER MODELS FOR CORPORATE PLANNING (Question 39)

Group	Computer Model Used for Corporate Planning		No Response	Total Planning Companies
	Yes	No		
Banks and Building Societies	1	3	1	5
Mining Companies				
Coal		2		2
Diamonds	2			2
Gold	1			1
Metals and Minerals		1		1
Financial Houses				
Mining				
Industrial	1	2	1	4
Industrial Trusts				
Insurance				
Property				
Industrial Organisations				
Beverages and Hotels		2	2	4
Building and Allied Industries		5		5
Chemicals	1	2		3
Clothing and Knitwear	1	2		3
Fishing				
Food				
Footwear and Leather		1		1
Furniture and Household Appliances		3		3
Iron, Steel, Engineering and Electrical	3	12	1	16
Motor and Transport	2	4	1	7
Paper, Pulp, Packages, Containers and Timber	2	2		4
Pharmaceutical and Medical				
Printing and Publishing	1	1		2
Stores	2	4		6
Sugar	1	2		3
Textiles, Carpets, Blankets and Yarns				
Tobacco and Match		1	1	2
Retailers and Wholesalers				
General				
Oil Companies	3		1	4
Service (Travel, Dry Cleaners, etc.)	1			1
Other				
Total	22	49	8	79

GRAPH 34 : ORGANISATION FOR LONG-RANGE PLANNING ESTABLISHED (Questions 40, 41)

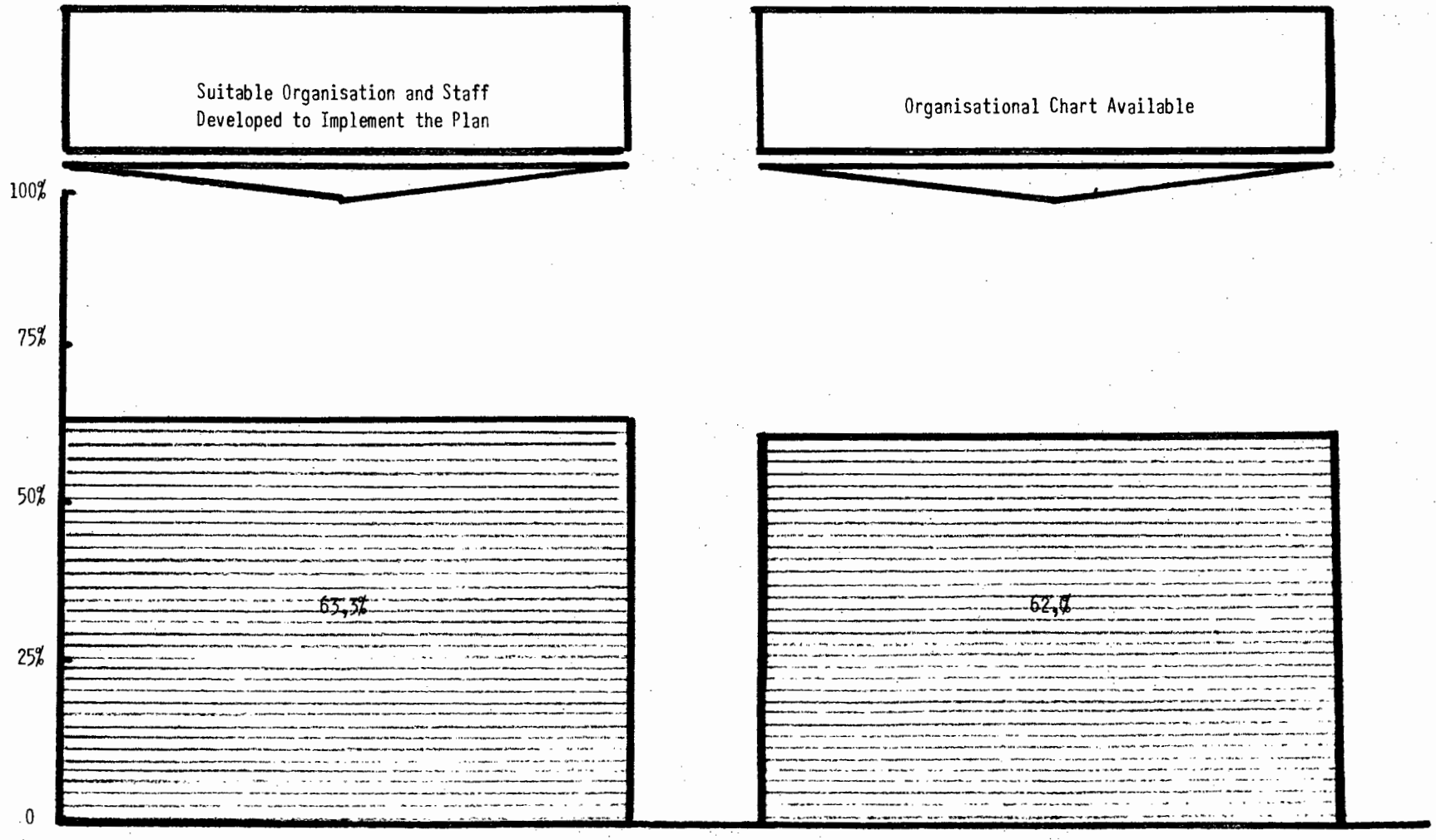


TABLE 34 : ORGANISATION FOR LONG-RANGE PLANNING ESTABLISHED (Questions 40,41)

Group	Suitable Organisation & Staff Developed to Implement the Plan		Organisational Chart Available		No Response	Total Planning Companies
	Yes	No	Yes	No		
Banks and Building Societies	4		4		1	5
Mining Companies						
Coal	2		1	1		2
Diamonds	2		2			2
Gold	1		1			1
Metals and Minerals	1		1			1
Financial Houses						
Mining						
Industrial	3		2	1	1	4
Industrial Trusts						
Insurance						
Property						
Industrial Organisations						
Beverages and Hotels	1	1	1	1	2	4
Building and Allied Industries	3	2	4	1		5
Chemicals	3		2	1		3
Clothing and Knitwear	2	1	2	1		3
Fishing						
Food						
Footwear and Leather		1		1		1
Furniture and Household Appliances	3		2	1		3
Iron, Steel, Engineering and Electrical	7	8	8	7	1	16
Motor and Transport	5	1	4	2	1	7
Paper, Pulp, Packages, Containers and Timber	2	2	3	1		4
Pharmaceutical and Medical						
Printing and Publishing	1	1	2			2
Stores	3	3	3	3		6
Sugar	3		2	1		3
Textiles, Carpets, Blankets and Yarns						
Tobacco and Match		1	1			1
Retailers and Wholesalers						
General						
Oil Companies	3		3		1	4
Service (Travel, Dry Cleaners, etc.)	1		1			1
Other						
TOTAL	50	21	49	22	8	79

GRAPH 35 : PLANS FOR CHANGING THE NATURE OF LONG-RANGE PLANNING ELABORATED (Question A)

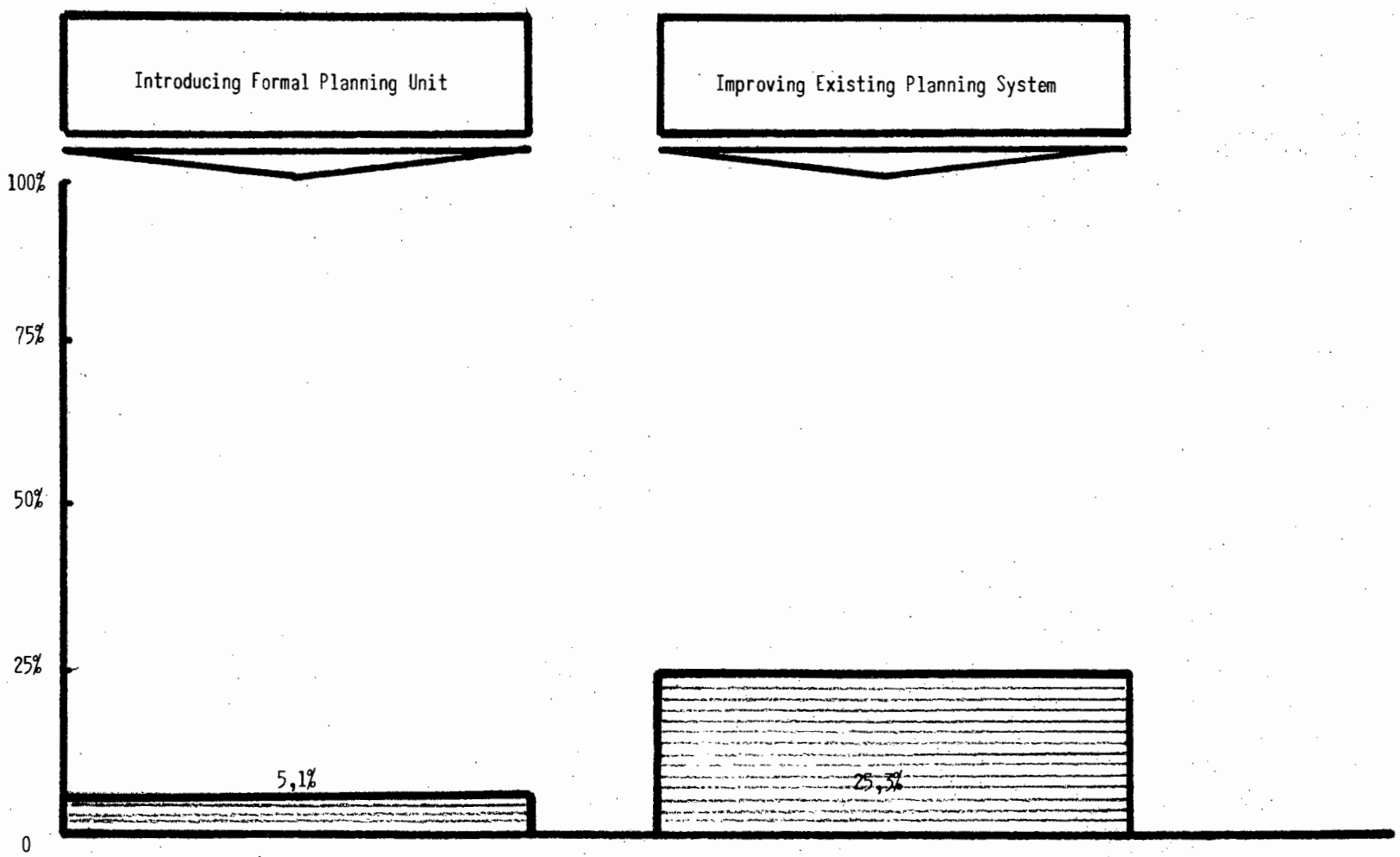


TABLE 35 : PLANS FOR CHANGING THE NATURE OF LONG-RANGE PLANNING ELABORATED (Question A)

Group	Introducing Formal Planning Unit		Improving Existing Planning System		No Response	Total Planning Companies
	Yes	No	Yes	No		
Banks and Building Societies	1	3	1	3	1	5
Mining Companies						
Coal	1	1	1	1		2
Diamonds		2		2		2
Gold		1		1		1
Metals and Minerals		1	1			1
Financial Houses						
Mining						
Industrial		3	1	2	1	4
Industrial Trusts						
Insurance						
Property						
Industrial Organisations						
Beverages and Hotels		2	1	1	2	4
Building and Allied Industries		5	1	4		5
Chemicals		3	1	2		3
Clothing and Knitwear		3		3		3
Fishing						
Food						
Footwear and Leather		1		1		1
Furniture and Household Appliances		3		3		3
Iron, Steel, Engineering and Electrical	1	14	3	12	1	16
Motor and Transport	1	5	3	3	1	7
Paper, Pulp, Packages, Containers and Timber		4	1	3		4
Pharmaceutical and Medical						
Printing and Publishing		2	1	1		2
Stores		6	1	5		6
Sugar		3	1	2		3
Textiles, Carpets, Blankets and Yarns						
Tobacco and Match		1		1		1
Retailers and Wholesalers						
General						
Oil Companies		3	2	1	1	4
Service (Travel, Dry Cleaners, etc.)		1	1			1
Other						
Total	4	67	20	51	8	79

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APPENDIX A

UNIVERSITY OF CAPE TOWN
DEPARTMENT OF BUSINESS SCIENCE

SURVEY OF SOUTH AFRICAN FIRMS ON LONG-RANGE PLANNING
QUESTIONNAIRE

CONFIDENTIAL

NAME OF ORGANISATION:

NAME AND POSITION OF THE RESPONDENT:

SIZE OF ORGANISATION:

Number of operating divisions or subgroups:

Number of employees:

APPROXIMATE ANNUAL SALES:

1968:R
1969:R
1970:R
1971:R
1972:R

TOTAL ASSETS EMPLOYED:

1968:R
1969:R
1970:R
1971:R
1972:R

PROFITS REALISED:

1968:R
1969:R
1970:R
1971:R
1972:R

MAIN PRODUCTS:

MAIN SERVICES:

A. WHAT IS THE EXTENT OF LONG-RANGE PLANNING IN YOUR FIRM:

(1) Does your firm have a formal planning sequence? Yes ☐ No ☐

(2) When was this plan introduced?

(3) How far ahead do you plan?

(4) Do you regard this sequence as 'short- or long-term' planning?

(5) Is the plan expressed in written form? Yes ☐ No ☐

(6) How often is the plan revised?

(7) Planned primarily by: Line ☐ Staff ☐ Both ☐

B. DOES YOUR COMPANY HAVE A FORMAL SEPARATE PLANNING UNIT? Yes ☐ No ☐

(1) What is the official designation of this unit?

(2) How many employees are there?

(3) What is the title of the executive in charge?

(4) To whom does he report?

C. From what sort of background does he come?
(e.g. economics, engineering etc.)

D. Why was the planning unit established?

E. What is the present function of this unit?
(If possible, please attach any policy statement indicating function, scope, and organisational aspects.)

F. If you do not have a special planning unit, how is long-range planning accomplished in your organisation?

1. Does your chief officer specifically define what the planning effort is to accomplish and what uses the plan will serve? Yes ☐ No ☐

2. Is his statement communicated to everyone affected by the planning? Yes ☐ No ☐

3. What staff assistance and facilities are provided to support, coordinate and encourage adequate planning by line managers?

4. Do the operating managers elaborate specific implementation plans with the assistance of the staff or of the top management? Yes ☐ No ☐
If so, please offer some details.

5. Is the balance between line and staff participation and responsability maintained, and the line responsability for profit recognised? Yes ☐ No ☐

6. Are all assumptions upon which the plan is based, and the specific policies which are essential to the plan's success written down instead of merely presenting forecasts and budgets as the final plan?
Yes ☐ No ☐

7. Are action steps assigned to individuals within a time table of accomplishment?
Yes ☐ No ☐
If so, can you elaborate?

8. Do those who will be carrying out the plan participate in the planning process, so as to better understand what the plan is, and what it is designed to achieve? Yes ☐ No ☐

9. Does everyone involved in planning realise that the act of planning is often as important as the actual plan produced because it focuses the attention of line management on the future, improves coordination, and provides a measure of achievement? Yes ☐ No ☐

10. Do you determine the key factors which will have a major influence on planning through a study of the following factors?

(1) External environment

A. Outlook for the industry

a. Social influences	Yes ☐	No ☐
b. Political considerations	Yes ☐	No ☐
c. Technological influences	Yes ☐	No ☐
d. Economic considerations	Yes ☐	No ☐

B. Position of your company in the industry

a. Market position	Yes ☐	No ☐
b. Cost position	Yes ☐	No ☐
c. Technological position	Yes ☐	No ☐
d. Competitive position	Yes ☐	No ☐

(2) Internal factors - strengths and weaknesses

A. Financial management policies	Yes ☐	No ☐
B. Marketing management policies	Yes ☐	No ☐
C. Manufacturing management policies	Yes ☐	No ☐
D. Managerial accounting policies	Yes ☐	No ☐
E. Personnel management policies	Yes ☐	No ☐
F. General management of the firm	Yes ☐	No ☐

11. Do you translate the findings of these analyses into forecasts:

(1) Technological forecast	Yes ☐	No ☐
(2) Economy forecast	Yes ☐	No ☐
(3) Industry forecast	Yes ☐	No ☐
(4) Sales forecast	Yes ☐	No ☐

If not, why?

12. Do you plan premises for developing implementation plans? Yes ☐ No ☐

13. Is the hierrachical nature of planning within your organisation recognised? (Is it realised that a large number of lower level managers' planning premises will come from the overall strategic plan, and that each level of plans becomes the framework upon which the next level of planning is based?)
Yes ☐ No ☐

14. Is the importance of planning premises realised, and does everyone involved in the planning process understand what plans should be developed based on them? Yes ☐ No ☐

15. In the light of the planning premises do you develop and evaluate alternative directions that your organisation might follow? Yes ☐ No ☐

16. Based on this evaluation do you select the corporate objectives? Yes ☐ No ☐

17. Do you state the principles of action, general philosophy, and the overall strategy that will guide and control all phases of the plan? Yes ☐ No ☐

18. Do you select your firm's objective(s) in one of the following areas?

(1) Industry Yes ☐ No ☐

(2) Market Yes ☐ No ☐

(3) Product, service offered Yes ☐ No ☐

(4) Customers Yes ☐ No ☐

(5) Functions performed Yes ☐ No ☐

(6) Profitability Yes ☐ No ☐

(7) Ownership (limits your firm wants to put on distribution of ownership) Yes ☐ No ☐

(8) Social and political responsabilities Yes ☐ No ☐

(9) Scope of operations (future geographic growth) Yes ☐ No ☐

(10) Size Yes ☐ No ☐

19. Do you develop alternative objectives? Yes ☐ No ☐

Within each of the above area selected and based on the study of external and internal planning premises?
Yes ☐ No ☐

20. **After developing the overall strategic direction for the company do you establish goals for each of the areas of the company's operations?**

(1) Marketing	Yes ☐	No ☐
(2) Engineering	Yes ☐	No ☐
(3) Production	Yes ☐	No ☐
(4) Research and development	Yes ☐	No ☐
(5) Personnel	Yes ☐	No ☐
(6) Finance, accounting	Yes ☐	No ☐
(7) Other operations	Yes ☐	No ☐

21. After developing and evaluating alternative courses of action that will achieve the objective(s), do you express the selected alternative in overall policies that best fulfill the corporate objective(s), and still meet market, industry, and company criteria? Yes ☐ No ☐

22. If you do so, who is assigned in your company the responsability for coordinating the overall policy statements?

23. For what major aspects of each company's operations (e.g. marketing, manufacturing, personnel, etc.) are policies designed in your organisation?

24. Does your firm have a policy manual? (A framework within which many policy statements and their supporting procedures and rules can be organised?) Yes ☐ No ☐

25. Are detailed plans for reaching corporate objective(s) and carrying out the corporate strategy developed in your firm? Yes ☐ No ☐

26. Do you specify subobjectives, and determine derivative strategies, policies, procedures and rules in all planning areas? Yes ☐ No ☐

27. Do you develop a step by step plan of action in all planning areas?

A. Marketing -	products or services	Yes ☐	No ☐
	markets	Yes ☐	No ☐
	competition	Yes ☐	No ☐
	financial aspects	Yes ☐	No ☐
	marketing research	Yes ☐	No ☐
	advertising and sales promotion	Yes ☐	No ☐
	sales and distribution	Yes ☐	No ☐
	marketing organisation	Yes ☐	No ☐
	marketing personnel	Yes ☐	No ☐
B. Manufacturing -	plant location	Yes ☐	No ☐
	equipment	Yes ☐	No ☐
	maintenance	Yes ☐	No ☐
	production	Yes ☐	No ☐
	materials	Yes ☐	No ☐
	manpower	Yes ☐	No ☐
	other (specify kindly)	Yes ☐	No ☐
C. Finance -	to assure that the company's financial limitations have been taken into account in the overall company's plans	Yes ☐	No ☐
	to develop overall financial objectives and determine the specific financial resources required to meet the company's objective(s) and operating requirements	Yes ☐	No ☐
	to forecast how much of these requirements will be met by generation of funds within the company, and how much will have to be obtained outside the company	Yes ☐	No ☐
	to develop plans how to obtain the funds needed from external sources	Yes ☐	No ☐
	to establish and maintain a system of financial controls covering the allocation and use of funds within the company	Yes ☐	No ☐

28. After implementation plans are completed do you review them, do you coordinate them, and do you integrate the individual plans within the overall comprehensive company plan?
Yes ☐ No ☐

29. Does your company's comprehensive plan include a summary of both strategic plans, individual operating plans, and staff plans and budgets? Yes ☐ No ☐

30. Can you outline your company's comprehensive 3-5 years business plan?
Yes ☐ No ☐

If so, please do it briefly below:

31. Do you develop and install controls of measuring performance against planned objectives and goals?
Yes ☐ No ☐

32. Does your company use budgets for controlling performance standards for each major operational and staff area? Yes ☐ No ☐
If so, specify kindly the areas controlled by the budgetary control.

33. For what specific time periods are the budgets prepared?

34. Does everyone engaged in the planning process realise the importance of the budget as an implementation planning tool? Yes ☐ No ☐

35. Are human relations techniques applied in your firm in developing a method for obtaining truly active participation in the budget planning process? Yes ☐ No ☐
If so, what techniques are used?

36. How does your firm measure the effectiveness of planning? What criteria are applied?

37. Does your company use some quantitative and graphic techniques in planning?

(1) linear programming Yes ☐ No ☐

(2) dynamic programming Yes ☐ No ☐

(3) decision theory Yes ☐ No ☐

(4) probability theory Yes ☐ No ☐

(5) waiting line theory Yes ☐ No ☐

(6) game theory Yes ☐ No ☐

(7) PERT Yes ☐ No ☐

(8) CPM Yes ☐ No ☐

(9) model building and simulation Yes ☐ No ☐

(10) other Yes ☐ No ☐

38. What is the nature of your company's information system? (How do you collect, screen, rearrange, and disseminate data required for planning?

(1) manual system	Yes ☐	No ☐
(2) electrical (or electrotechnical) data processing system	Yes ☐	No ☐
(3) electronic (EDP) data processing system	Yes ☐	No ☐

39. Do you use computer models for corporate planning? Yes ☐ No ☐
If so, describe the model used and what planning decisions are studied with this model.

40. To implement the plan does your firm develop a suitable organisation and staff? Yes ☐ No ☐

41. Does your firm have an organisational chart? Yes ☐ No ☐
If so, would you kindly provide us with this document?

42. If your firm does not have an organisational chart, can you briefly describe how responsabilities and authority are defined and assigned, and how working relationships are established in your company?

43. How do you plan for organisational change?

(1) How do you identify the scope and nature of the change and the attitudes and feelings of the personnel involved?

(2) How do you develop a plan for introducing the change?

(3) What planning steps do you use to reduce resistance to change, if possible without compromising the integrity and major objectives of the new proposal?

A. Are there any plans for changing the nature of your present approach to long-range planning?
Yes ☐ No ☐

If so, explain briefly.

B. How much planning, do you feel, is enough for your company? (Please explain briefly.)

C. Do you know what are the cost/benefit relationships in your planning process?
Yes ☐ No ☐

If you know, please explain briefly.

D. Would you like a copy of the summary of the results of this project? Yes ☐ No ☐